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Advertisers are classified and arranged in the following order:

Advertisements will be printed on cover pages only.

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PLATE ILLUSTRATIONS

FROM WORK BY

PEABODY & STEARNS; WILLIAM G. RANTOUL; R. CLIPSTON STURGIS.

LETTERPRESS

DOME OF THE CHURCH IN THE COLLEGIATE CONVENT OF SANTA ROSA DE VITERBO, QUERETARO, MEXICO.

This dome is one of the best examples of the famous Mexican Architect, Eduardo Tresguerras. The dome was probably entirely covered with glazed tiles but only the panels of intricate patterns in various colors now remain.

THE PRESENTATION OF PRELIMINARY STUDIES OF ARCHITECTURAL SUBJECTS

BY HUBERT G. RIPLEY.

ARCHITECTURE, of all subjects, affords as fair a target as any for the budding writer. All that is necessary is an imposing array of adjectives joined to a few technical terms with now and then a metaphor or simile that baffles the intelligence; add the proper amount of words and sentences and finish up with a glowing and scintillating peroration, and another "article" lies quivering on the editor's desk.

Now the very title of this series is subject to criticism, in as much as it is liable to the impeachment of redundancy; but as it is only intended as a "filler" to the charming illustrations that accompany it, we will let that pass and proceed at once to the serious consideration of the subject, only digressing occasionally when it is found necessary to fill out the quota of words that are essential to give page 23 a shipshape look.

M. Vitruvius Pollio, one of the earliest writers on architecture, was not wholly happy in his home or office life, and devoted a great deal of time and labor in composing and writing several massy tomes in difficult and abstruse Latin. He pulled the subject apart to see what made the wheels go around, examined it carefully, labeled it, classified it, and finally announced the following discovery:

> "Architecture consists of Ordination, which the Greeks call *taxis;* of Disposition, which the Greeks call *diathesin;* of Eurythmy, Symmetry, Decor, and Distribution, which the Greeks call *oiconomia.*"

This definition has never been equaled by any modern writer, even of the Rochester School. It stands to-day like the Parthenon, alone, unrivaled, supreme in its greatness, the despair of the ages. True, Mr. Newton says of it, "Its obscurity may very likely be owing in a great degree to our ignorance of many circumstances of those times, their use of the technical terms; or the different acceptation of words." This admission on the part of so eminent a writer as William Newton (obit circa 1790) substantiates the assertion presented in our first paragraph.

From time to time, when we are "up against it," we shall have occasion to quote liberally from Vitruvius, as we believe in always going to the fount and playing safe. Now then, as regards preliminary sketches.

The Preliminary Sketch is the architect's introduction to the startled public. He bursts from the chrysalis of obscurity and flutters in the sun, clad in many colors, or monotone, or line, or pencil, or any other medium. As Lord Inverclyde, the celebrated architect once said, "Most men buy the *Boston Transcript* to wrap up the *American* in"—meaning that the function of the perspective is to throw a halo around the mistakes and errors of the scale drawings.

Take a typical case; perhaps the young architect's father decides that, after his son has graduated from a four years' course in architecture at the University of Skitomish, followed by six years' training in Paris and two months' experience in the office of W. C. Bowles, he will alter the old barn into attractive eight-room semi-detached suburban houses. Father wants to see right off how the alterations will look. So after the floor plans and an elevation are decided upon, two courses are open. Either the architect may get the Jaques Blanque of his city to show the barn in a fog or early sunrise effect for three or four hundred

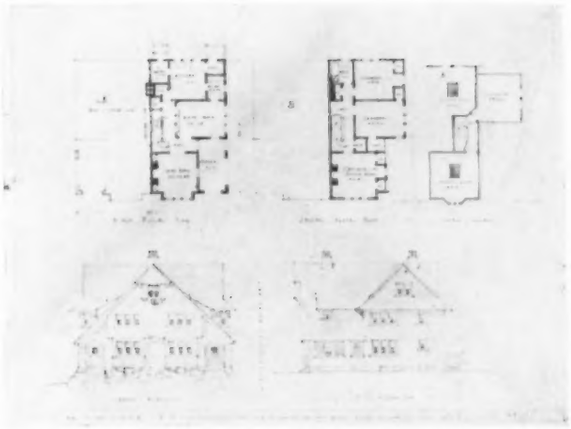


FIG. I.

Showing the young architect's first presentation in pencil on tracing paper quickly made. A positive print is given the client and additional prints struck off for purposes of obtaining estimates, etc.

FIG. II.

Perspective view of the houses shown in Fig. 1, rendered simply in water colors with the pencil lines showing through, accentuating the outlines and shadows. The form and outlines of the old barn have completely disappeared, and the alterations could probably be built for only three or four times as much as a wholly new building would have cost.

dollars; or take the plunge himself, "lay out" the perspective and render it with his own hands.

If Blanque does the drawing, he makes it on the back of some substance that looks like Holland window shade cloth or firecracker paper mounted on trunk board. There is an advantage in making the drawing on window shade cloth because the window shades in the house may be left natural color and texture; also early morning effects are easily suggested by leaving the whole sky window shade color.

The beginner will find a quick, simple and effective presentation by making the floor plans and perspective on thin white tracing paper, using a medium soft pencil, taking care not to smutch the drawing and having one or two Vandyke positive prints struck off by the X-ray Blue Print Company. The change that occurs in the appearance of the sketch is almost always greatly to the advantage of the print. The mere fact of the mechanical process that intervenes seems to lend an adventitious and sometimes a fictitious value to what may be a very ordinary effort.

An attempt will be made to present examples of the various methods employed, as far as the limits of magazine illustration will allow, but the more delicate shades and nuances of pencil and wash are inevitably lost in reproduction. Some architects go in quite extensively for photography in connection with their preliminary sketches, and photographs of a set, each neatly mounted, showing the original drawings reduced to a uniform size, generally produce a good impression on the client. Further on we shall take up the matter more in detail if the public demands it.

In regard to the embellishment of the sketch, care must be taken with the drawing of the cartouch in the upper right hand corner, and it is well to search carefully the volumes of Cæsar Daly, Pfnor, De la Fosse and others for good ones. There's nothing sets off a sketch so well and pleases the client more than a cartouch finely drawn, and many a sketch has "pulled it off," thanks to the allure of the upper right hand corner. It is an evidence of visible skill quite incomprehensible to the lay mind. It reassures the client to find that, while the architect has departed very far from their ideas of arrangement and sizes of rooms, expression of style, cost, etc., here is a spot on the drawing that shows the architect knows his business and is beyond criticism, and no mistake has been made in the "selection" of their architect.

FIG. III.

The first sketch for the seaside bungalow. Note that the gnarled old trees have been carefully preserved and the Pergola Arms shown in the upper right hand corner. The view is taken looking away from the sea, and the trees do not really exist, but they could be planted, and would grow, with careful training, in eighty or ninety years.

A scrapbook of cartouches suitable for owners' names, and titles to drawings, is a handy thing to have, or better still, a card catalogue may be kept for ready reference, so that the "Preliminary Studies for John Smith, Esq. 2d" may be properly adorned.

An advantage in making the sketches so that they may be either blue or brown printed is that slight alterations can be easily made and a new print struck off at trifling expense and labor.

Suppose the next client is a wealthy maiden lady with a mind of her own, who wishes to build a bungalow at the seashore. This time

the architect must take more pains in planning and arrangement, and it might seem advisable to vary the medium and show the building rendered in pen and ink. (The illustrations show several ways of rendering different subjects, from a simple outline sketch to one more in detail. It will depend upon circumstances which to choose.) If the plans have been carefully studied, and the importance of the commission warrant it, a carefully laid out and rendered perspective going into considerable detail may be best to show; or if the sketch is to be a rough, hasty one, many of the undecided details may be barely suggested. The drawings and sketches of Henry P. Kirby show in a masterly manner to what an extent the presentation of preliminary studies may be carried in pen and ink, and should be carefully studied by anyone who wishes to excel in this medium. They are pure architectural drawings of masses and bits of detail, and in their way have never been excelled.

Vitruvius says, "Eurythmy consists in the beautiful form and handsome appearance of the members of a composition. This is effective when the heights of the members are adapted to their length, each being correspondent to the symmetry of the whole." To think that Vitruvius said this only two thousand years ago; dear me, how time flies.

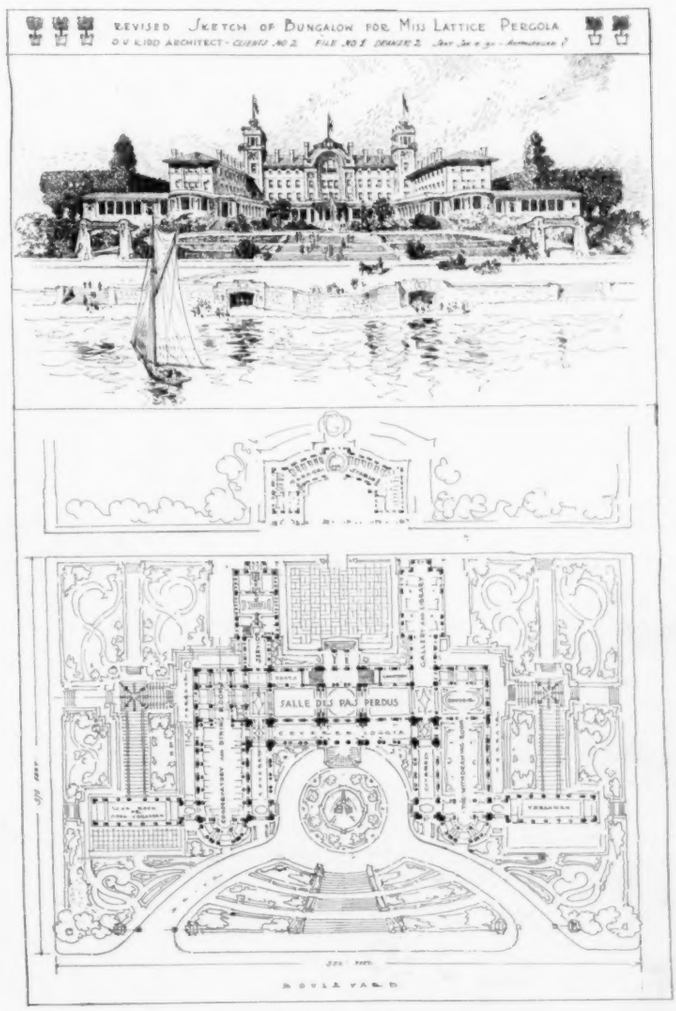


FIG. IV.

See how Miss Pergola's bungalow has grown. The first sketch was duly appreciated, thanks to the cartouch and the trees, but the building did not meet the client's ideas as to style, arrangement, size of rooms, etc. These have now taken a more concrete form, and this sketch shows a well-balanced plan, homelike, cozy, and livable. The estimates, however, may necessitate cutting it down.

Be that as it may —perhaps it would be well to take up for a few moments the consideration of the "little things" that go to make up a sketch, such as windows, roofs, columns, caps, overhangs, doors, chimneys (many a punk façade has been saved by having a fine chimney copied out of Belcher & Macartney) porches, pergolas, pots, box hedges, clipped trees, and shrubs of various kinds, and all the dope that goes to "tickle up" a drawing.

If the exigencies of the drawing demand a row of columns, or a multiplicity of clipped larches, let them be so shown as not to appear monotonous, but each to take its place in a quiet, unobtrusive manner, where possible covering up defects and hiding indefinite or unstudied details with particularly well drawn foliage.

The different mediums of expression in the presentation of preliminary studies are numerous and varied, and it would be impossible to enumerate them all, as every day new ones are being handed out. The range is wide; from thumb-nail sketches with a piece of burnt match, such as Mr. Emerson used to charm us with some years ago, to, in some cases, elaborate and careful oil paintings.

When the Boston Architectural Club was first formed, many happy evenings around the keg were spent, listening to smoke talks by the master of those days. With burnt matches or crayon or pencil-dust some "calé type" (as our Gallic friends would say), would make a thatched roof cottage, or a steamer come sailing up the harbor by moonlight, and the enthusiasm with which these efforts were received by the younger fellows was not surpassed even when the second keg was broached.

Everyone is familiar with the vigorous and convincing perspectives of Wilson Eyre done on brown butcher's paper or gray charcoal paper with pencil, wash, ink and charcoal, all beautifully blended, each sketch admirably suited to the subject. Indeed no catalogue of the T-Square Club was considered fit to be issued without several of these examples, and they stand to-day as models, not only of ideal presentations of preliminary

sketches, but as having assisted in building up and creating an interest in a most charming type of purely American domestic architecture.

In this connection the work of such men as Harvey Ellis and Oscar Enders deserves the highest praise. There have been many of the school, of which Harvey Ellis was the recognized head, and several architects would have been unknown to fame but for the perspectives which tripped so gaily and lightheartedly from his facile pen. Detail masses, trees, clouds, sky, figures, all seemed to just pour out of the ink bottle and take their proper places on the paper, and yet each sketch showed masterly skill and subtle refinement. The earlier sketches were invariably in pen and ink and on these his fame chiefly rests, though in later days his color drawings were even more highly estimated. "Ah, them wuz the happy days." Sketches such as these were all that made life and the "American Architect" endurable.

FIG. V.

This sketch of Mr. Le Boutillier's shows how the client's first rough idea may be presented in such a manner as to give all the essentials in a simple, straightforward sketch readily grasped and understood.

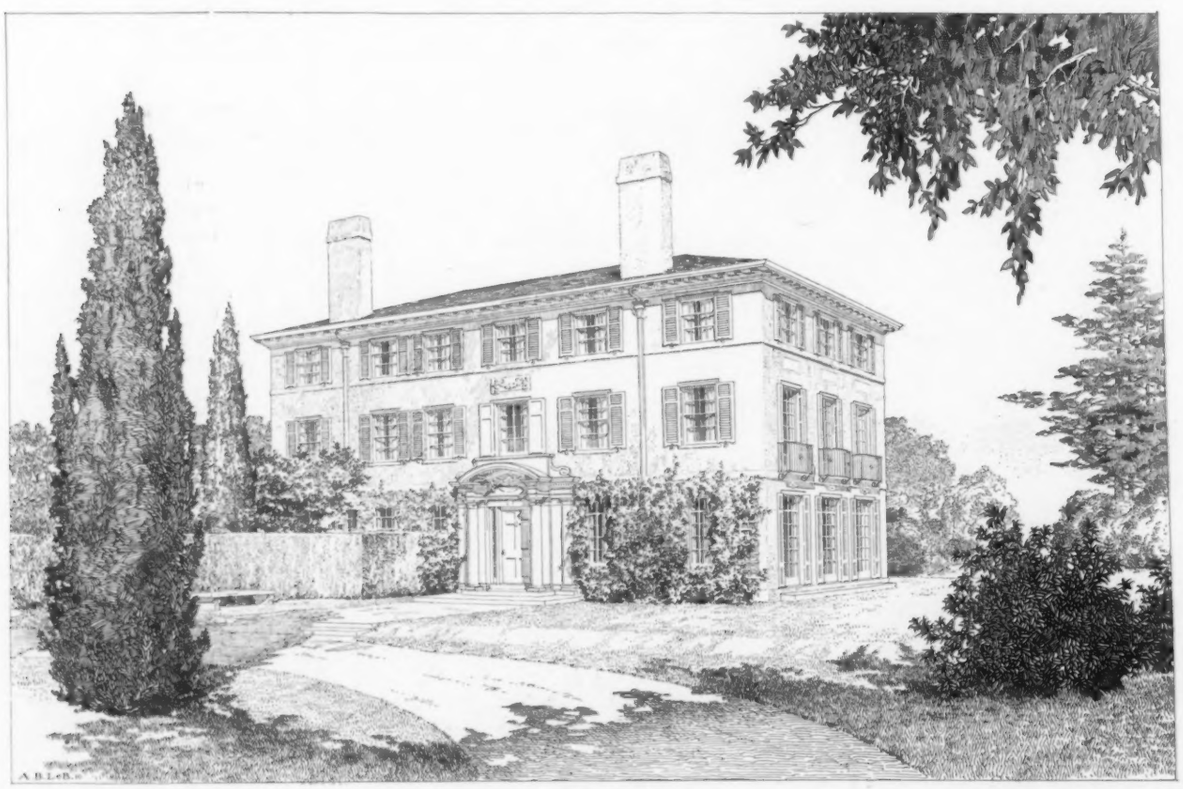
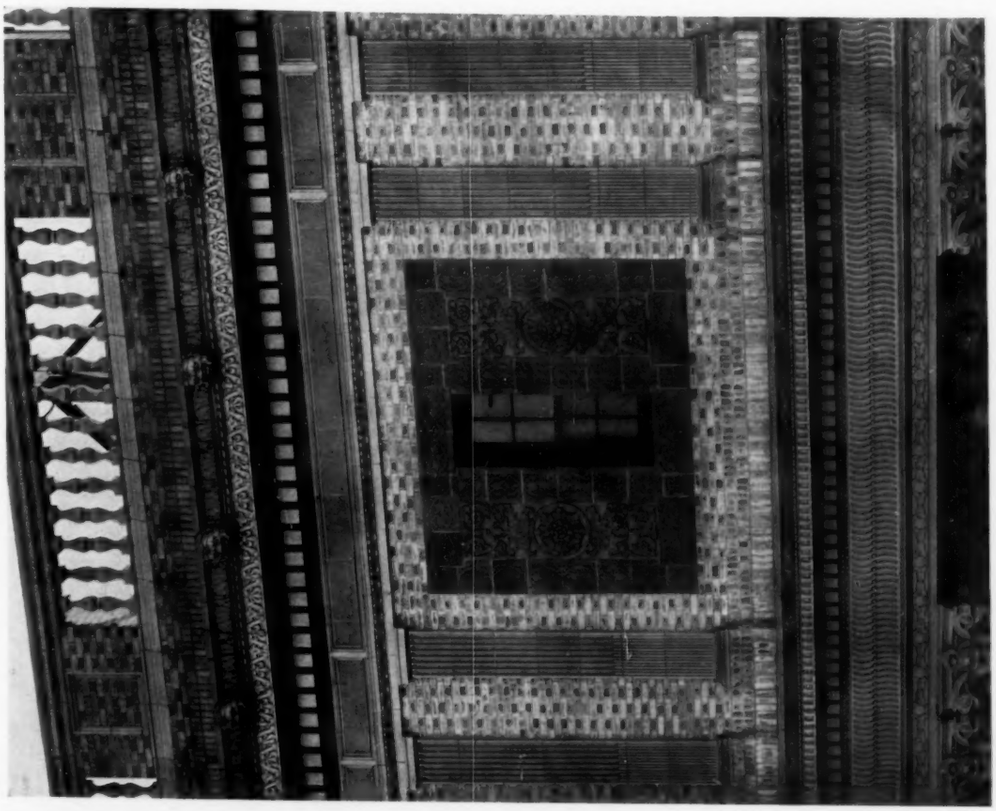
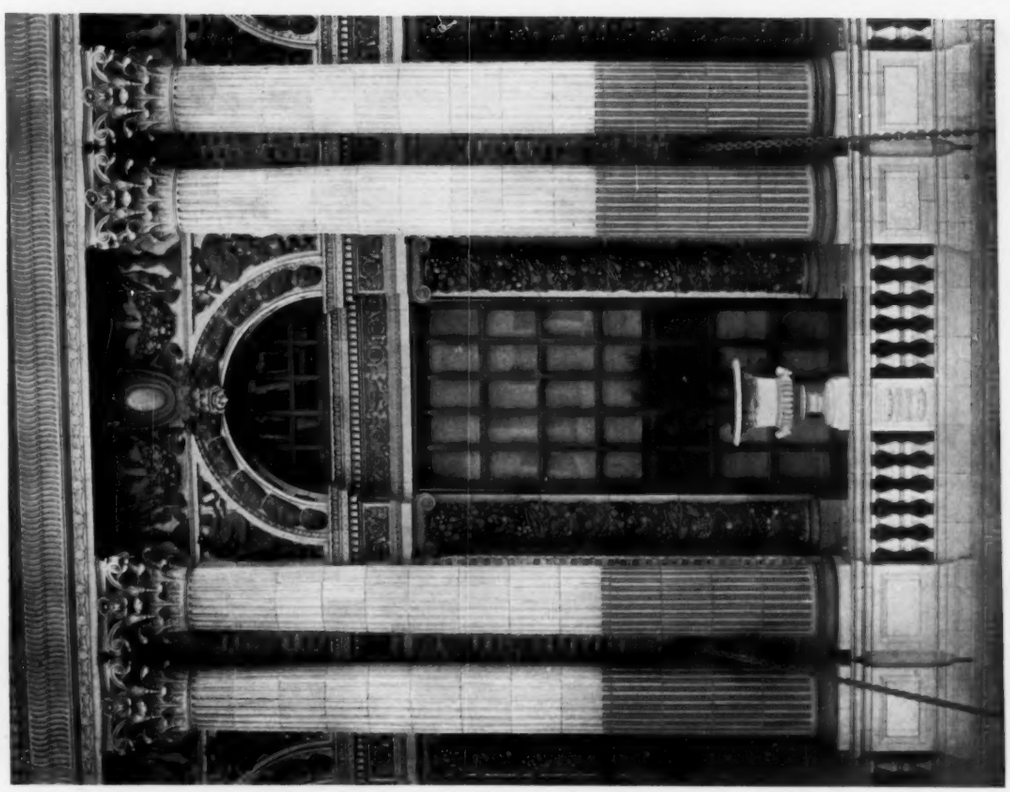


FIG. VI.

Shows a house carefully worked out in all its details, restrained, studied and refined, and drawn with accuracy in all its parts. The foliage and window treatment are worthy of close study. This drawing needs no cartouch. (A. B. Le Boutillier, architect.)





EXTERIOR DETAILS, COLUMBIA THEATRE, SAN FRANCISCO, CAL.
Bliss & Faville, Architects.

House at Fitchburg, Mass., William G. Rantoul, Architect.

BY H. A. FROST.

THE house at Fitchburg is situated just out from the center of the town, on the side of a steep hill, where the sharp ascent is broken by a narrow strip of level ground, which affords a pleasant resting place in the climb. The grounds extend approximately 100 yards along the street, and 50 yards back to the house, sloping slightly up from the main thoroughfare. On the opposite side of the house the lawn pitches away rapidly in a series of terraces and then forms a shallow bowl-like depression with a round pool at the far end. Along the rim, opposite the house, is a garden of bright old-fashioned flowers.

Approaching the house from the street one is struck by its simplicity. The walls are of brick, with enough dark headers picked out to give it a texture, without appearing spotted. The roof is double slated, the slates being well selected, and having a wide range of color. A driveway entering one corner of the grounds curves towards the main entrance, broadening into a semicircular carriage turn which is surrounded by a high wrought iron fence, terminating in brick posts. Beyond the main entrance is a more sheltered entrance under a porte-cochère. From here the drive divides, one part turning to the left towards the service portion of the house and entering the stable yard, while the other part turns to the right, and passes out again on to the highway.

On the eastern or street front the manner in which the vestibule breaks out recalls slightly some of the old Hingham houses, though of course the treatment is wholly different. Here the limestone columns carry a simple wooden hood. Overhead, there is a small balcony surrounded by a wrought iron railing, to which access is gained from the second floor by a long window with stone architrave and carved swags, the only bit of such decoration on the house. A living porch with Doric columns and brick piers stretches across the southern end of the house, where it receives the sun the entire day.

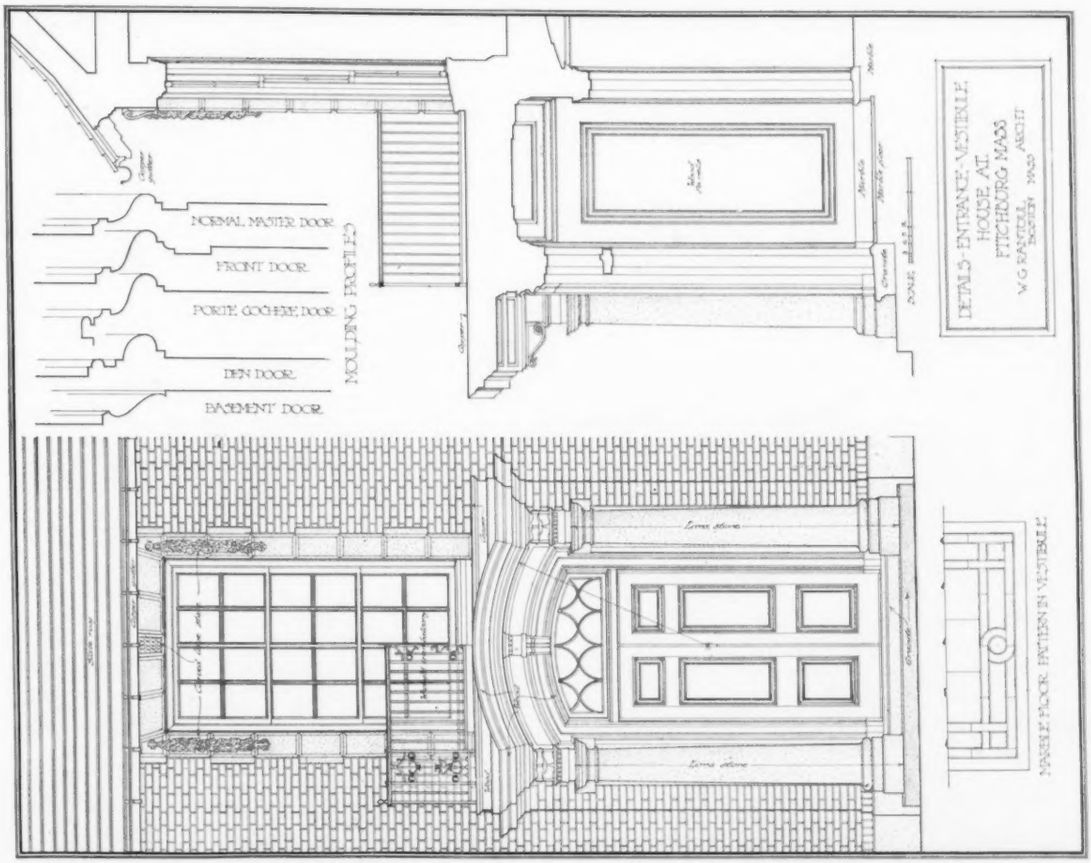
DETAIL OF GARDEN FRONT.

A glance at the plans shows the interior arrangement one would expect; the living room with a southern and western exposure, the library with an exposure to the south, the den with eastern light, and the dining room which has windows facing south of west. The usual tendency, in domestic work, of giving the dining room the morning sun seems hardly feasible here, as to do so would result in an outlook only on the street, and would sacrifice both the privacy and the present view on the rose garden. The hall occupies the center of the house and runs through two stories, having a gallery on three sides, and being lighted from the second floor by the large window over the door. The service wing is properly toward the north, and acts as a screen to the garage and stables.

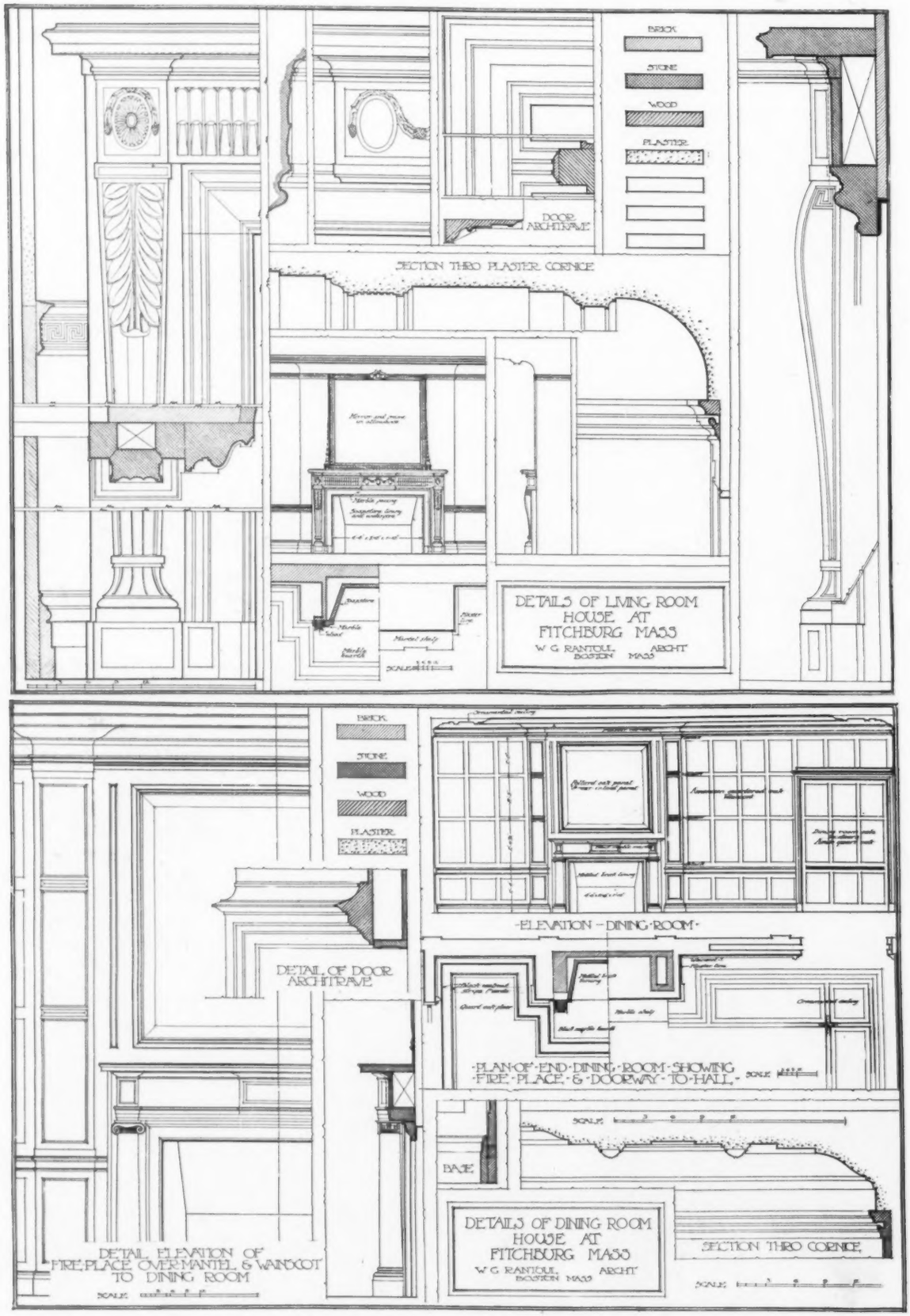
The western elevation commands a view of the grounds, the pool, and the valley beyond with its clustered city roofs, spires, and stacks, while still farther are the distant hills. Although this side of the house is treated with restraint in the use of decoration, as is the front, still the general effect is lighter. The door, wholly glazed, has a wooden enframement projecting just far enough to carry a very shallow iron balcony. It gives access by some half dozen steps to the level of the small formal garden with its flanking pavilions. The dining and living rooms are marked by generous semicircular bays with windows reaching quite to the floor. The central gable instead of carrying a straight pediment line is broken in an interesting manner. Everywhere is a pleasant play of light and shade, the effect obtained always by the simplest methods. A comparison with the street front is instructive. There we find a simplicity amounting almost to severity, while here, where more privacy may be expected, a more informal character is arrived at.

To return to a study of the various rooms of the interior; one enters into the hall proper through a vestibule, the marble floor of which has a pattern marked out by setting some of the joints in brass. Here the floor is of quartered oak. The walls are paneled and painted to the second floor level. The stair treads, rails, balusters, and posts, are mahogany, while the risers are of pine painted. The floor of the broad landing over the front door is of mahogany, while that of the second floor above is of red birch with the finish in pine painted. The walls are plastered and painted, and the ceiling covered with tinted canvas. The treatment of the hall is quite Georgian, and very interesting, with its heavily moulded panels, turned balusters and the limited use of mahogany.

On the first floor the library to the left of the hall, and



ENTRANCE TO HOUSE AT FITCHBURG, MASS.
William G. Rantoul, Architect.


BRICK
STONE
WOOD
PLASTER
DOOR ARCHITRAVE
SECTION THRO PLASTER CORNICE
DETAILS OF LIVING ROOM
HOUSE AT
FITCHBURG MASS
W G RANTOUL BOSTON MASS ARCHT
ELEVATION - DINING ROOM
DETAIL OF DOOR ARCHITRAVE
PLAN OF END DINING ROOM SHOWING FIRE PLACE & DOORWAY TO HALL
BASE
DETAILS OF DINING ROOM
HOUSE AT
FITCHBURG MASS
W G RANTOUL BOSTON MASS ARCHT
SECTION THRO CORNICE
DETAIL ELEVATION OF FIRE PLACE OVER MANTEL & WAINSCOT TO DINING ROOM

MANTEL IN DINING ROOM.

MANTEL IN LIVING ROOM.

STAIR HALL.

ENTRANCE.

HOUSE AT FITCHBURG, MASS.
William G. Rantoul, Architect.

the den to the right, have floors of American quartered oak. In the library the finish is of St. Jago mahogany. The paneled dado and bookcases are carried up to the height of 4 feet 8 inches, and above that the walls are covered with a dark paper. The ceiling beams are of mahogany finish, and the plaster of the ceiling is covered with canvas and tinted. The finish in the den on the other hand which is carried to the same height, 4 feet 8 inches, is of quartered oak. The fireplace here has a limestone mantel, while that in the library is of mahogany with a marble fire opening.

The living room opens by wide sliding doors into the dining room, hall and library, and by French windows on to the living porch and to the lower garden level. The bay window, measuring 14 feet across, gives an outlook over the entire grounds. The floor similar to all the first floor rooms is of oak, in this case with a border pattern. The dado is of pine 2 feet 6 inches high with moulded cap and base, treated with applied papier-mâché ornament, and painted. The wall covering is of a warm brown tone, with a cornice of plaster, instead of the wooden cornice, as in the hall. The ceiling is dropped to a lower level in the recesses at each side of the fireplace and in the bay window.

Particular attention may be called to the treatment of the mantels in both dining and living rooms. The two rooms are entirely different in character and the mantels of both are well in keeping with their surroundings. In the living room the mantel and the hearth are of marble with the lining of soapstone. The design recalls the English Georgian and the treatment of mouldings and decoration with the delicate surface cutting is admirably adapted to the nature of the material. The carved and gilded mirror frame above, adds an interesting detail. In the dining room the paneling from floor to cornice, is of dark quartered oak. The mantel is reminiscent of some of the mantels still found in a few of the older Boston houses in the neighborhood of Mount Vernon street. The mantel and fire opening are of black marble. The robust Ionic columns with their well turned capitals carry a simple entablature. Above the mantel is a beautiful oak panel, balanced by two vertical strips of black walnut. Strips of black walnut are introduced at various points throughout the paneling, giving it added interest. The cornice, of plaster, is very rich. The mouldings are less delicate than in the living room but in perfect accord with the character of the room's treatment.

In the service portion of the first floor the floors are of Georgia rift hard pine except in the kitchen where maple is used. The finish throughout this portion of the house is whitewood.

On the second floor the bedrooms and corridors have red birch floors with three course borders. The finish of the base, cornice, and picture moulding is of pine. The ceilings are tinted. The bathrooms throughout have tile floors and 4 foot tile dados. Above that the walls are plastered and painted.

On the third floor are servants' rooms, servants' bath, a trunk room, and a large children's play room where small dances may also be held.

The stable and garage need little comment. The stable has accommodations for three horses, a carriage room, and coachman's quarters on the second floor. The garage is a one story wing with space for four machines. The foundations where they appear above grade are of seam faced granite. The walls above are of brick as in the house.

GARAGE AND STABLE.

The Manual Training High School.—I.

BY WILLIAM B. ITTNER.

HIGH SCHOOLS in which manual training is taught along with the ordinary high school studies are called Manual Training or Mechanic Arts High Schools. Schools of this character are of comparatively recent date, and when designed to meet a general need should not be confounded with special schools such as commercial high schools, technical high schools for boys, technical high schools for girls, english high schools, classical high schools, and high schools of all sorts wherein all the courses are not offered.

The high school course of study, which in the past has had for its chief function the preparation of its students to enter college, is rapidly giving way to a system designed to equip them for their future work. The growing demand of the industrial world for intelligence and skill can best be met by schools designed to train and educate the hand as well as the brain, and the schools best designed and equipped for this purpose will accomplish the greatest good for the people in any community.

The Manual Training School of Washington University in St. Louis was the first institution of high school grade to make instruction in the mechanic arts an essential part of its curriculum. Through the efforts of Prof. Calvin M. Woodward and a number of public-spirited men it opened its doors in 1880 to a system of education which would fit young men for the actual duties of life in a direct and positive manner, while imparting a sound literary and scientific training.

To quote from a recent catalogue of the school: "The conspicuous result of thirty years of manual training is that the young men thus trained have brought to the ordinary duties and responsibilities of life an intellectual and mental grasp of actual conditions which has at once gained for them a clear advantage. They have shown that some mechanical skill and a great deal of mechanical comprehension and power of mechanical analysis have been valuable assets and not unfit accompaniments of refined tastes and good manners. The training has opened new avenues of usefulness to many a lad, and has enabled many others to choose their occupations more wisely, either in the direction of the industrial arts or in other fields. The success of the graduates has been remarkable; and in consequence manual training schools, on public or private foundations, have been established in nearly every large city in the country."

It is only within recent years that buildings wholly designed for instruction in manual training have been erected. This course of study has been introduced in many school systems by altering or enlarging existing buildings to meet the needs of modest or experimental beginnings.

Among the first buildings of the country planned for instruction in manual training in connection with public instruction were the Wm. McKinley and James E. Yateman Manual Training High Schools of St. Louis. These buildings were opened in 1904 and were planned to house all the manual training and domestic science branches in addition to those of the regular high school course of study. They also included instruction in woodworking, wood turning, and pattern making; moulding, forge, and machine work; free-hand and mechanical drawing; bookkeeping and stenography; cooking, sewing, and laundry work.

The success of these pioneer buildings was such as to fix, for a time at least, the type for this class of school buildings. In these earlier buildings, however, the course of study was in its formative period, and it is only at the present time that educators have arrived at anything approximating a general agreement on the course of study.

In most cases the instruction in manual training and domestic science is optional with the students and there is very little definite data upon which to fix the proportion between class room, laboratory, and shop. The necessity therefore of a flexible plan, or one which will permit of easy adjustment to meet the crowding or abnormal growth of any of its departments and their future extension, is of the utmost importance. This, together with the intricate equipment to be provided — proper heating and ventilating, and the introduction of a mechanical plant — combine to make the problem of planning far from the ordinary.

Before considering the plans of individual buildings it will be proper to take up the general plan requirements of a manual training high school.

One of three plans may be adopted. If the school is to have study halls or session rooms three stations must be provided for each pupil, one in the shop or laboratory, one in the study room, and one in the recitation room. It is therefore readily seen that a plan which attempts such accommodation is the most expensive one which can be adopted. Its advantages however lie in the fact that it will provide the most elastic plan, permit of the greatest possible liberty in the organization of the classes and furnish the maximum accommodation.

A second plan and one which is growing in favor abandons the study hall or session rooms and provides class rooms of standard size. These rooms seat from thirty-five to fifty pupils, or two classes, and while one class is at study the other is reciting. A building on this plan therefore is reduced in cubic contents by the space occupied by the large study halls and is consequently less expensive. At the same time its elasticity is retained provided the proportion between class room, shop, and special room has been well considered along with the course of study.

The third and most economical plan is one in which all special rooms are counted as class rooms in the organization of the school. All rooms are used throughout the school day either for the special work for which they are designed or by a class at recitation or study. A building of this character has reached its limit of accommodation when each room has its quota of pupils and will admit of no over-crowding or enlargement of the course of study for which it has been arranged.

Having determined on the general plan of our building, a consideration of its component parts will be in order.

Class Units. Schools are built with or without study halls or session rooms. If planned with study halls the class room is reduced to a recitation room accommodating about thirty pupils. Each room is fitted with recitation or tablet armchairs, and such rooms are best small, 18 to 21 by 24 feet being a good size. They should be unilaterally lighted upon the long axis of the room.

Where class rooms are used both for study and recitations they should be of such area as will accommodate two classes, or from thirty-five to fifty pupils in single desks. An ideal size for such a room is 24 feet by 32 feet 6 inches and it should be lighted on one side only with windows having a glass area from one-fifth to one-fourth of the floor area.

Study rooms are often found seating from two hundred to three hundred or more pupils. A better practice would be to reduce the number of pupils in such rooms to about one hundred and fifty. A room 30 by 62 feet will accommodate this number in single desks, enable proper lighting, give a better distribution of the pupils on the various floors of the building, aid the school management in supervision, and enable students' prompt arrival at recitations. Study rooms should be fitted with single desks, and provided with a platform for the teacher.

Class rooms and study halls should be conveniently located with respect to stairways, laboratory, and shop. Much can be accomplished in their judicious placing to minimize horizontal travel distance and stair climbing.

Laboratories. These may receive their light from two sides if desired as the pupil has opportunity to adjust his position to the light, a condition which is lacking in the class room. Oblong rooms with approximate dimensions of 21 to 30 feet in width and 45 to 60 feet in length are better than rooms of square dimensions. The equipment should be so arranged that the pupil faces the instructor and receives the maximum amount of light from the left.

Laboratories should open en suite with lecture rooms which should be arranged with raised tiers of seats fitted with tablet armchairs brought as close as may be to the instructor's table. In the absence of the lecture rooms sufficient floor space should be allowed at the instructor's table in the laboratory for the massing of the pupils during demonstrations.

Each laboratory should have its instructor's work and storeroom. This should be well lighted, ample in size, and fitted with a workbench, sink and storage cases for the more delicate and valuable apparatus. For chemistry and physics a dark room will be found of value.

The student tables in the chemistry laboratory should be provided with sinks, gas hoods, and reagent racks. A small conservatory for the botany laboratory and an aquarium for both botany and physiology laboratories will be found helpful to house and germinate the water plants and animal life used in the laboratory.

The instructors' tables should be fitted with sinks having a wood cover; there should be a sliding blackboard behind each table. Each laboratory and lecture room should be equipped with lantern for lecture use.

Physics, chemistry, botany and physiology laboratories should be equipped with gas and hot and cold water. Physics and chemistry rooms should also have electric outlets at all tables.

Each laboratory should be provided with a sufficient number of wall cases to house the apparatus. They should be designed for their particular uses and in standard units if possible. Students' individual working tools are best stored in drawers in the workbench or table. A note-book case with writing top will be found a valuable addition to the physics and chemistry laboratories.

Commercial Rooms. In a fully equipped school a business and typewriting room will be found necessary. The equivalent of three class units will be necessary for this purpose. The business room may be fitted with specially designed desks or in a more modest equipment the ordinary single pupil's desk will be found to answer the purpose. Space should be provided for the bank and business houses behind screens with pass windows and standing desk. A storage case should be provided to hold the blanks used by the students.

The typewriting room should be fitted with the necessary number of typewriting desks and the space may be economized by grouping two or more students at a single table.

Drawing. The free-hand drawing and art rooms should occupy the space of two or more class units. They should receive north light preferably through toothed skylight (studio light) with its base about 7 feet from the floor. They should be equipped with storage case for the pupils' drawing boards and materials, adjustable drawing tables, small tables for still-life subjects, a model table for life posing, zinc lined storage case for modeling clay and work, and sinks. A cork panel on the wall opposite the skylight will be of aid to the instructor in arranging and criticizing class work and for exhibitions; the best grades of cork carpet answer the purpose admirably.

Mechanical drawing is required of all the students in manual training and the equivalent of two class units will be required. They should be well lighted and equipped with drawing tables, drawing boards and tools. An economical method of storing the same is effected by a special designed drawing table holding the boards as well as the students' individual tools. There should also be a large table with drawing top and drawers and a blueprinting frame.

Domestic Science. This department will require a room for cooking with storeroom, one or preferably two sewing rooms with fitting rooms and a laundry. These rooms are best if conveniently grouped with sunny exposure and good light.

The cooking room should be of ample proportion (about one and one-half class units will suffice) and should be equipped with a cooking table arranged to hold the individual working kits, and provided with corner sinks. A gas burner and portable oven will be required for each student and a combination gas and coal range will complete the equipment. In the more elaborate rooms an electric oven will be required for demonstrations by the teacher.

A convenient, well lighted storeroom with small refrigerator for perishable supplies is a necessity. A great deal will be added to the effectiveness of the instruction

by providing a small model dining room where the girls may be instructed in table setting and serving. In fact the most complete equipments demand a housekeeping suite consisting of bedroom, dining room, pantry, and kitchen, all fully furnished for instruction in household duties.

The laundry will require the space of a class unit and should be equipped with a nest of laundry tubs, a clothes drier and stationary ironing boards equipped with electric irons.

One or more sewing rooms are necessary. These may be of class unit size and should have a fitting room. Each room should be equipped with sewing tables and machines. The tables should be arranged to hold the students' caps, aprons and work, or storage cases should be provided for the purpose. The fitting room should have storage cases for materials and the hanging of unfinished garments, a fitting platform, skirt and bust forms, and a pier mirror. Both the fitting and sewing room should have a fixed ironing board with electric iron.

Manual Training. The woodworking room should be of ample floor space (not less than 40 square feet per pupil) to accommodate classes of from twenty-four to thirty pupils.

The benches should be substantial and rigidly secured to the floor and should be provided with drawers to hold the individual tools. The tools used in common should be conveniently arranged on the bench back.

If floor space will permit an instructor's bench surrounded with a raised tier of seats will aid the instructor in his work. A grindstone, glue heater, and glue bench will complete the equipment of the shop.

The wood turning room should be somewhat larger than the woodworking room as the benches must be enlarged to receive the lathes. These may be of the belt or individual motor driven type. The equipment will be complete with a tool room where the tools used in common by the students are stored; a storage room arranged with coils for the storage and drying of the lumber; a preparation room containing a cross-cut saw, circular saw, and motor where the lumber is cut to shape for class exercises, and a small room where the articles are varnished and finished. This room should have a fireproof receptacle to hold the paint, oil, and varnish.

A moulding room to accommodate twenty-four pupils should be 24 to 30 feet wide and about 40 feet in length. This will provide the necessary space for the moulding troughs, melting furnaces, and floor space for making up and pouring the flasks. A cupola furnace is not necessary as it is only in the more elaborate schools that iron moulding is attempted. A small furnace for the melting of soft metals is all that is required in a majority of cases.

The forge room should be equipped for from twenty to twenty-four pupils and will require a floor area of 40 square feet per pupil. It should be equipped with down draft forges and underground piping. A room to contain the fan, blower, and motor is a necessity. A drill press, punch and shears, a power hammer, a wet grinder and a filing bench for each two students will complete the equipment for this room.

The machine shop should be about 24 by 60 feet. This will afford the necessary floor space for the machines and filing benches. Machine tools to accommodate sixteen students is all that is required as the number in the fourth year's work will rarely exceed this. The machines should be of standard make and selected for simplicity rather than complication, while one or two of the more elaborate tools may be installed for the use of the more skilled pupils and the instructor.

Gymnasia. If physical training is to be compulsory two gymnasia will be found a necessity. The minimum size of these rooms would be 25 to 30 by 75 feet, and the minimum story height would be 14 feet. The ideal size would be 50 by 80 feet with a story height of 18 feet. Besides the necessary apparatus the rooms should be provided with steel storage cases for dumb-bells, Indian clubs, and wands. Dressing rooms equipped with lockers for sections of fifty pupils each with one or two showers for the girls and showers and plunge for the boys will add much to the completeness of the equipment.

Opinions differ widely on the practicability of a running track as they can only be installed in the larger rooms, are seldom used in class work, and are very expensive. Unless the conditions are most favorable for their installation they had better be omitted.

Library. A manual training school is not complete without its library or reference reading room. This is the room in which the pupil will spend his unoccupied periods and it should be well lighted and equipped with reading tables and metal book stacks.

If the school is of large dimension a separate book or stack room will be found a necessity and the equipment should be such as is found in public libraries.

Rest Rooms. There should be rest rooms for both teachers and pupils. Large rooms are not necessary but they should be well located and equipped for the use of pupils and teachers who are indisposed and who need simple medical attention with an opportunity for rest and relaxation.

Auditorium. The growing demand for the use of high school auditoriums for evening lectures and purposes other than strictly school use demands that they be located on the ground or first floor, and near the main entrance of the building. They should be capable of seating the entire school, should be well lighted with the windows arranged for darkening curtains, and should be provided with sufficient exits to enable their vacation within two minutes. It goes without saying that auditoriums are strictly speaking-halls and should be proportioned to obtain the best acoustic results.

The stage should be of ample proportions with sufficient width to accommodate the stage setting for the class plays, large choruses, and other exercises.

Office. The administrative office of the building should consist of a general and private office, a small reception room, and a storage vault for records. The group should be located near the main entrance and conveniently arranged to facilitate the work of the school.

Lockers. The practice of lining the corridors of a high school with lockers should not be encouraged. Lockers should be placed in large well lighted and ventilated rooms where they can receive proper supervision and care. If for economical reasons they are placed in corridors they should be recessed and ventilated by a system of ducts exhausting the air from the corridors.

Lunch Room. The lunch room forms a very necessary part of a large high school. The short lunch period prevents all except those living in the immediate vicinity of the school from leaving the building at noon. The room should be ample in size and equipped with long serving counters and a kitchen with convenient service entrance.

Storerooms. A modern high school requires two or more storerooms to hold the great quantity of supplies needed by the students. Such rooms should be ample in size, well lighted and arranged with convenient shelving and a work table.

A janitor's room of good dimensions equipped with lockers and a storage room for the cleaning supplies is also a necessity and should be located on the ground floor.

Corridors and Stairways. As all students in a high school are compelled to change from room to room between class periods, it follows that the corridors and stairways should be ample to hold the entire student body at one time in order that the change may be made promptly and without confusion. The corridors should be wide and well lighted having 15 feet as a minimum width for main corridors and 10 feet for secondary corridors. Class room doors opening into corridors of less width will obstruct the corridor and cause congestion and consequent confusion.

The stairways should be well separated with a view of serving groups or tiers of rooms more or less correlated in the courses of instruction. This will minimize the travel distance between rooms and enable prompt response at classes. As the time allowed for change in classes is rarely more than three or four minutes the importance of the judicious planning of the stairways must be apparent. Again stairways are best when arranged in double flights, that is when the same are planned so that the file of pupils ascending is independent of the file descending. Four and one-half and 5 feet will be found the best width for stairways. There should be a continuous hand rail on each side of all runs.

Mechanical Equipment. The heating and ventilating system should be designed to supply 40 cubic feet of air per pupil in class rooms and laboratories, and 70 cubic feet of air per seating in the auditorium. The school should be equipped also with a complete telephone system, program clock, and bell system; vacuum cleaning system; and in most cases a power plant for the generation of the electrical energy to drive its motors and furnish light.

All mechanical equipment should be developed with the plan, and should be both modern and efficient. A successful building demands the careful consideration of its complete equipment and mechanical plant. The drawings and specifications should make ample and complete provision for the same, in order to avoid costly alterations and inadequate equipment provisions, or the inevitable result will be a non-workable school building.

Cost. There are many instances where school committees unhampered by lack of funds have been able to erect fully equipped high schools of monumental character costing one-half million dollars or more. This however is the exception rather than the rule and most school authorities are confronted with the problem of obtaining maximum accommodation with limited funds. The need then of proper planning, the judicious use of materials, and restraint in design are of greatest importance. The completion of the building proper is by no means the end of expenditures for the cost of fixed and working equipment will in most cases amount to from fifteen per cent to twenty-five per cent of the cost of the building when complete and ready to receive it.

Plan and equipment are so varied that no fixed standard of costs can be given but a reference to the cost of the completed buildings which will be described in following articles will serve for illustration.

CHURCHILL'S RESTAURANT, 49TH STREET AND BROADWAY, NEW YORK CITY.
Robert Baer, Architect.

The Principles of Architecture.—I.

BY WILLIAM L. MOWLL.

The Beginning of the Study of Architecture.

BY FAR the greater number of those who have aimed to interpret this art have proceeded by relating its history. Few of the adequate histories make an appeal to the general reader. In the shorter histories it has been necessary, on account of the periods of time to be covered and the space occupied in the mere naming of countries and of architects and buildings with their dates, to exclude the greater part of the discussion of the dependence of architecture upon construction and upon the character and general activities of the nations that produced it, that would naturally have been included except for that pressure. The very bulk of architectural history makes its general familiarity impracticable. Sensibility to fine architecture cannot to advantage be trained exclusively on the admiration of the work of other generations. The success and growth of the art of architecture depend on current appreciation; since there is not time in the individual existence to prepare for this by a long study of history from which shall be deduced principles of correct procedure, it becomes necessary to depend upon the results of the research of others, to base judgment on rules which are the summing up of past experience. Even for the student of architecture, however, there are only meager presentations of those laws of design which have emerged from all the study of the history of this art to which the profession has necessarily given itself.

Architecture may be enjoyed without elaborate historical knowledge if it is studied with the aid of the ideas of abstract design, observing the interrelations between the use, the construction and the arrangement of the parts of each composition. This method of approach has the advantage of proceeding to the study of a building itself rather than its ancestors. It may use as the material of its study contemporary art. It has the further advantage of preparing for some degree of enjoyment in any kind of architecture, whether in the manner of those periods in which the art rose to its highest levels and there was the most intimate relation between the construction and the appearance of the finished building, or in the manner of those other periods commonly asserted to be less fortunate, when the decorative result was more independent of the construction.

Architecture is the art of building in accordance with the laws of fitness, stability and expression; or, "architecture is the art of building in accordance with the laws of expression," for all building necessarily involves fitness and stability. Expression alone is lacking to raise any construction into the realm of architecture.

Besides achieving practical fitness it is the duty of the architect to so design that not only shall the dimensions and arrangement accommodate the physical activities for which the structure is intended, but that it shall also be suitable to the inherent character of its use. As distinguished from practical fitness this may be described as a fitness to ideals or spiritual fitness.

Architecture is replete with illustrations of the truth that any kind of order may be pleasing even when the forms which are arranged are indifferent or ugly. This is certainly not to argue that the parts so disposed need not be cared for as appeared to be the case in Barocque architecture, but only that order is essential and contributes to beauty. Beyond the field of order as an element of satisfaction, the relation of the appearance to the actual constitution of the structure is another analyzable form of beauty, for which laws may be stated and the appreciation of which may be developed by study. Organic beauty is a source of esthetic pleasure, not, it is true, immediate in its appreciation as is intrinsic beauty but depending upon a more or less conscious analysis of the object and upon a perception of the harmony between its parts and their functions, such as occurs, for example, in the relation between the forms and arrangements of walls, piers and arches, their manner of enclosing or supporting, and in their mutual adjustments. So far only do laws of beauty exist that may be stated and their application observed. Intrinsic beauty which lies beyond the kinds already mentioned is unanalyzable and the capacity for its appreciation is only to be cultivated by the development of such faculties as the individual may possess and in a suitable environment. Beauty in architecture is, after all, — and it is to be suspected that this is true of other arts as well — a by-product of expression.

This brief indication of the possibilities of expression applies equally well to stability which with fitness makes up the subject matter of the expression of architecture. The stability of a building depends upon comparatively simple laws. There is, however, no necessity for the layman to study mathematics and construction in order to appreciate architecture. The visible portions of the perfect work of architecture explain the parts of the construction of which they form a part or to which they are applied. This they may do by giving assurances as to the properties of the materials employed. In a rusticated block of stone, the shape is made conspicuous. The harder and tougher the stone the longer it may be in relation to its height. The emphasis upon its shape declares the qualities that directed its choice. This is the beginning of the function of expression in architecture, to make clear at a glance the relative properties of the materials involved, such as their ability to resist crushing or pulling apart, and to set in evidence their texture or color or, further, to bring out their qualities by the character of the carving or modeling. The failure on the part of the factory and the railroad bridge to be more interesting than they already are lies in just this particular. Already, in many cases, having some organic beauty, they fail because of incomplete expression. The enjoyable structure is such because it is intelligible. The base upon the ground, the mounting of the successive stages one upon another and the termination of the work above, with suitable emphases upon the junctions and the ties and thrusts of all the combinations of materials, may each be made to tell its story to the beholder who cares to stop and look. All this variety of detailed emphasis and explanation is not however indispensable to

every work of architecture. Architects have always felt at liberty to pass over facts with regard to materials, to cover up facts with regard to structural systems where the crowding forward of so many different interests would withdraw attention from the central, all important idea. In Byzantine architecture for instance the materials which were available for the actual structural portions were not suited in quality to the sentiment of the builders. They desired a richer and more splendid effect than could be had in the brick of which their piers, walls and vaults are built. Their resources made available beside the brick splendid variegated marbles and glass mosaic, materials not at all adapted to structural purposes as they are too precious to use in masses As a result the construction was completely covered up. Falsehood however has the same practical effect in art as in life; always discovered, it weakens the force of any subsequent statement. Truth in art makes for interest, for credence and for beauty. The force of the appeal which the finished work makes depends on the arrangement of the elements ; and this frequently requires that many facts be passed over lightly in order that a few may make a strong impression.

To establish the idea that an architectural composition may be expressive is to arouse an interest in reading that expression. Yet any composition as a whole is a complex affair, difficult to put together and, to one desiring to understand it, presenting a baffling array of phases. To make the study simpler the forms of which a composition is made up may be separated into groups according to their purposes. To state again classifications already suggested, the elements of an architectural composition are the forms of use, the forms of structure and the forms of expression.

In the first place the whole structure is, so to speak, built around the idea of the edifice and forms a mould of it. The building forms which fit the contained ideas are conveniently called the forms of use for they satisfy either practical or ideal necessities. Of a house the forms of use are the living room, dining room, and so on; and these are in detail such as are dictated by the habits of existence of those who are to live in them. Of a schoolhouse the class rooms, coat rooms, and assembly hall are the forms of use. In a church the auditorium, the Sunday school rooms, the library and so on, together with the dome or the spire constitute the forms of use of its composition, part of them practical, part ideal. Since, in every instance, these forms are first to be considered in any movement to erect a building it might seem that they should be the starting point of the study of composition, but engineers study the arrangement for example, of factories, without trespassing upon the field of the architect, who must proceed beyond mechanical satisfaction and give meaning and life to the forms of use and substance to the ideas that relate to them. His means are first, those common to expression in general as in language, that is, selection and arrangement. He cannot stop at the point where the plan is merely practically efficient but must produce a result which is clear and understandable or even striking. It is impossible however to consider these forms without involving notions of the structural forms in which they are realized. Limitations of greater or less extent are imposed upon the size and shape of rooms or halls by the means of building.

The attention might then be turned first to forms of structure setting aside for the time the study of the forms of use which are produced with their aid. This would place foremost a study of walls and piers, beams and arches, flooring and ceiling systems and so on. The same general possibility of expression by selection and arrangement exists for the construction but with greater limitations. There is less freedom of arrangement because each kind of construction has its peculiar restrictions. The length of a stone lintel for instance fixes the maximum distance between columns and when the arrangement is settled upon, whether from esthetic or constructive reasons, mere revelation or even more or less arbitrary modification in size does not constitute expression or enough differentiate the results from those of engineering.

At this point recourse has been had from the very beginnings of the art to certain added forms which assist in the expression of the forms of structure. The capitals and bases of columns and their flutes, cornices and mouldings have in general no structural function whatever but esthetic or expressive functions only. Not the mouldings or other decoration but the expression added to building makes it architecture, whether this be achieved by selection, or invention, and arrangement, or by the use of those explanatory and emphatic additions usually spoken of as decoration, which it seems suitable to call the "forms of expression."

The detail of architecture which is worthy of examination at all includes the simplest and most indivisible forms of any architectural composition. When each form added to the bare structure or each modification of the forms of the materials and structural systems is regarded as not superficial or purely arbitrary but as significant, then these forms assume a very considerable importance. The study of the decoration is the avenue in the first place to a knowledge of materials. Besides this they furnish emphases and explanations of structure and still further often act as guides to the location, importance and sentiment either of the forms of use themselves or of the whole structure. The forms of expression of all the "styles" are of the same general kinds. Some such as reliefs and statues, mosaics and paintings are symbolic. By means of images of well known forms they arouse associated ideas and thus convey suggestions of the character of the edifice upon which they are placed. They may by their presence at an important part of the composition guide the attention or even the actual bodily movement of the beholder to an intended part. Beside being symbolic they are thus emphatic, calling attention for instance to a principal room or a main entrance. Another class of these forms may be distinguished which is emphatic only and which does not convey or suggest definite ideas. This latter group includes all the isolated, added forms of expression which are not representative. Lowest of all in the class of simply emphatic forms of architecture are the mouldings and just because of the simplicity of the meaning of these forms and the gateway that their study affords to an understanding of materials and structural systems and of the principles of design, with them the most favorable beginning may be made upon the study of architecture.

Editorial Comment and Miscellany.

THE COMPETITION FOR A HOTEL IN AN AMERICAN CITY OF MODERATE SIZE.

Award of Prizes.

THE Jury for the Hotel Competition, which was the problem for the last annual Terra Cotta Competition conducted by THE BRICKBUILDER, awarded First Prize ($500) to William La Zinsk and Dwight James Baum, associated, New York City; Second Prize ($250) to Henry Ihmsen Hellmuth and Charles H. Conrad, associated, New York City; Third Prize ($150) to C. H. Dittmer and C. D. Loomis, associated, New York City; Fourth Prize ($100) to Frederick J Larson, Boston; First Mention to J. Victor Vanderbilt, Minneapolis, Minn.; Second Mention to Walter Watson Cook, Boston; Third Mention to George F. Blount and John M. Gray, associated, Boston; Fourth Mention to Albert M. Kirschbaum and Joseph J. Gander, associated, New York City; Fifth Mention to William Adams and Charles Cleary, associated, Boston; Sixth Mention to William R. Schmitt, New York City. The competition was judged in New York, January 21st, by Messrs. Donn Barber, Arnold W. Brunner, Henry J. Hardenbergh, Benjamin Wistar Morris, and Philip Sawyer.

EXTERIOR AND INTERIOR OF CAFÉ AND RATHSKELLAR, WASHINGTON, D. C.
The interior is laid in rough cut "Persian" brick of deep brown and purple hues, furnished by O. W. Ketcham.
Vogt & Morrill, Architects.

PLATE ILLUSTRATIONS—DESCRIPTION.

PUBLIC LIBRARY, BROOKLINE, MASS. PLATES 3–6. The exterior treatment of this building is of buff Indiana limestone and dark red common sand struck Dutch brick. The flat roofs are covered and flashed up and under parapets with plastic slate. Upon the interior the floors of the main entrance halls and vestibules are laid in Tennessee marble and black slate, while the service corridors and toilets are in terrazzo. All library floors are laid in cork carpet except in the librarian's room and trustees' room, where wood block is used. The wall surfaces above the wooden bookcases in the general reading rooms are covered with plaster, while those in the rear "Book Room" are of oak paneled to the ceiling. The design of the rear "Book Room" is arranged with alcoves similar to an English College library. The exhibition room on the second floor has "Monk's Cloth" stretched over wood sheathing on terra cotta and brick backing. All partitions are of brick and terra cotta with considerable wire lath. The heating and ventilating systems consist of hot water and direct heat, supplemented by fresh air, exhaust fans and gravity vents. The exhaust fan system is used only for the children's rooms. The cost of building, including grading, walks, drives, etc., was $224,400.00 and the cost per cubic foot, 32 cents. In cubing the dimensions were taken from 1 foot below the basement levels up to mean roof level—not counting parapets.

WINSOR SCHOOL, BROOKLINE, MASS. PLATES 7–10. The exterior of this building is treated with Indiana limestone and sand struck brick with copper roofing. The floors upon the interior are generally of linoleum; those of the swimming pool room are terrazzo, while certain offices, the gymnasium and the play rooms are wood on screeds. Burlap dadoes with tinted plaster above decorate the wall surfaces. The roof frame is exposed in the play rooms on the third floor. All partitions are brick or terra cotta. The heating and ventilating systems consist of direct steam supplemented by plenum fans. The school accommodates two hundred and fifty pupils. The cost per cubic foot was 23½ cents not including furniture and commissions. The cubage was taken from 1 foot below basement floor to halfway up the pitched roof.

CHELSEA CITY HALL, CHELSEA, MASS. PLATES 11-14. This building is an example of the early Colonial style and follows in grouping the plan of the Independence Hall, Philadelphia. The exterior is designed in brick with joints ruled deeply and trimmings of gray terra

cotta. The roof is of slate with dormers, balustrades, etc., of copper. The main entrances have iron balustrades with balconies of the same material above. The entrance vestibule and corridor are finished in marble and plaster, the corridor having a flat vault in the second story while the vestibule walls above the marble are treated in panels. The stair hall is decorated with plaster-paneled mouldings and vaulted ceiling. The staircase is of marble and iron. The two main rooms at the ends of the second story corridor are designed in wood and plaster with large panels and rich mouldings. The total cost of the building was $211,000.00 exclusive of the furnishings, while the contents approximated 750,000 cubic feet, the cubage being taken from the basement floor to the middle point of the roof.

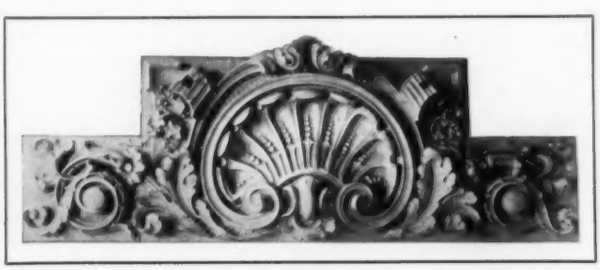
HAMPSON BUILDING, WATERBURY, CONN.
Trim of polychrome terra cotta made by Atlantic Terra Cotta Company.
Griggs & Hunt, Architects.

SUCCESSFUL COMPETITORS FOR GOVERNMENT OFFICES.

THE following announcement has been made with respect to the three new department buildings which are to be erected on Pennsylvania avenue facing the White House grounds, Washington. Arnold W. Brunner, a former member of the Art Commission of New York City, won the award for the State Department Building, to cost $2,200,000; Donn Barber was chosen for the Department of Justice Building, costing $1,900,000, and the firm of York & Sawyer secured the Commerce and Labor Building, which is estimated to cost $3,650,000. The successful architects will revise their designs, wherever practical, so that the group of three buildings will form a harmonious whole. The Department of Commerce Building, the largest of the three, will occupy the center, flanked on one side by the State Department and on the other by the Department of Justice Building.

These structures, designed in a simple classic style, will be built of white marble, thus harmonizing with the House and Senate office buildings, the new municipal building and the wings of the Capitol. Of the fifty-nine competing architects, twenty-eight were from New York, the others included the leading architects of Boston, Philadelphia, St. Louis, Chicago, Washington, Cleveland, Detroit and one from San Francisco. Those who received honorable mention were James Gamble Rogers, Warren & Wetmore and

DETAIL.
Executed in faience by the Rookwood Pottery Company for the Palm Room in the Hotel La Salle, Chicago.
Holabird & Roche, Architects.



DETAIL.
Executed by New York Architectural Terra Cotta Company.
Schwartz & Gross, Architects.

Harold Magonigle, all of New York, in the State Building contest; Cass Gilbert and Percy Griffin of New York, and Parker, Thomas & Rice of Boston for the Department of Justice; and for the Department of Commerce Building, Tracy, Swartwout & Litchfield, Max Friedlander and George B. Post & Sons, all of New York. The committees of award for the three Government buildings were: Department of State Building — E. V. Seeler of Philadelphia, John V. Van Pelt, J. R. Pope, and Raymond F. Almirall, New York City, and Herbert Langford Warren of Boston. Department of Justice Building — John M. Carrère of Carrère & Hastings, J. Milton Dyer of Cleveland, Russell Clipston Sturgis of Boston, N. C. Ricker, head of the School of Architecture in the University of Illinois, and Alexander B. Trowbridge, head of the Architectural School in Cornell University. Department of Commerce Building — Pierce Anderson of Chicago, Glenn Brown, Secretary of the American Institute of Architects, Henry Bacon, John B. Pine and D. Everett Waid of New York City. The committee worked in co-operation with the Washington Park Commission, of which Daniel H. Burnham is chairman.

DETAIL.
Executed by New Jersey Terra Cotta Company.
Charles B. Meyers, Architect.

HARVARD CHAIR FOR FRENCH ARCHITECT.

EUGENE JOSEPH ARMAND DUQUESNE, architect of the French government and holder from 1897 to 1901 of the grand prix de Rome, has been appointed professor of architectural design at Harvard. Mr. Duquesne, born in Paris in 1868, began his professional studies in the Ecole Nationale des Arts Decoratifs, where he won the prix du ministre, the grand prix d'architecture and the prix Jay. He entered the Ecole des Beaux Arts and received the grand medaille de construction. He also received first mention in the international competition for a palace at Bukarest, the grand medal of the Societe Centrale des Architects Francais, the prix Lusson, the prix Pigny of the Institut de France, the prix Abel Blouet of the Ecole des Beaux Arts and "first-second place" in the competition for the grand prix de Rome. In 1897 Mr. Duquesne received the diploma of architect from the French government, and won the grand prix de Rome of the Institut de France. For four years he held this prize and traveled throughout Europe. During Mr. Duquesne's professional career he served as auditor to the conseil general des batiments civile; was inspector of works for emergency hospitals; and opened an independent atelier for students of architecture. In July, 1908, he was appointed government architect in charge of the restoration and repairs of the palace and gardens of Versailles and the Trianon. It is understood that when Mr. Duquesne takes up his residence in this country he will continue, in addition to his teaching at Harvard, the practice of his profession.

OLD HEIDELBERG APARTMENT, PITTSBURG, PA.
Roofed with combination shingle tile made by the Ludowici-Celadon Company.

AUTOMOBILE SUPPLY STATION, CHICAGO.
Enameled terra cotta, in two colors, from grade to sky-line, made by Northwestern Terra Cotta Company.
Jenney, Mundie & Jensen, Architects.

UNIVERSITY COMPETITION.

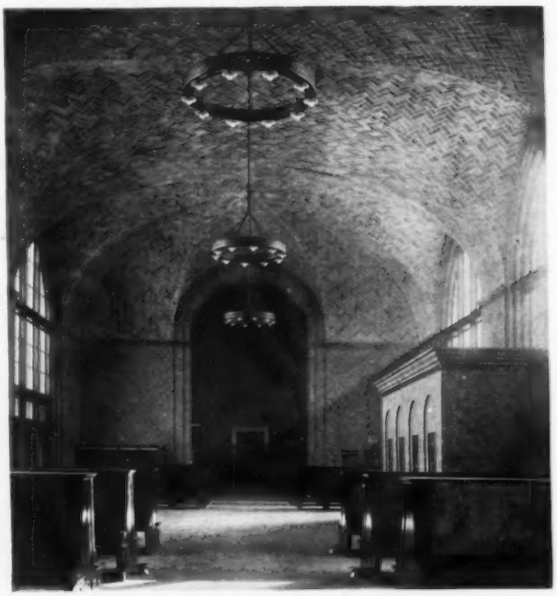
THE Northwestern University competition, just announced, affords the most recent example of the acceptance by a building committee of the principles set forth in the institute's circular of advice on competitions. The circular of information regarding the competition is as follows:

The trustees of Northwestern University have appointed a committee with power to procure a general plan for its campus at Evanston and to appoint an architect for buildings now projected at a cost of three hundred fifty thousand dollars ($350,000.00). This the committee will do through a competition which has been approved by the American Institute of Architects through its Illinois Chapter, and will be conducted by Prof. Warren P. Laird. It will be restricted to twelve architects, of whom four have been especially invited, while eight will be selected from the open field. To the former, and those three among the latter rated by the jury as best, will be paid each a fee of five hundred dollars ($500.00) and traveling expenses incurred in an inspection of the site; such fee, in the case of the appointed architect, to apply on account of his fee as architect of the work. The jury will consist of the adviser and two other architects chosen by the competitors from among five or more nominees selected by the adviser. The appointed architect will receive one thousand dollars ($1,000.00) for the use of his general plan in addition to the fee of six per cent (6%) on the work. The competition will close April 15, 1911; the official program was issued about Jan. 20, 1911.

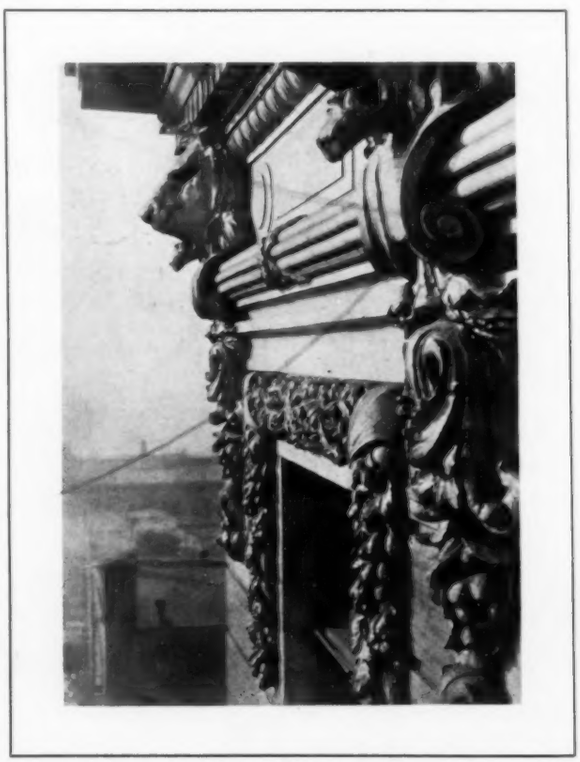
DETAIL FOR MUNICIPAL BUILDING, SPRINGFIELD, MASS.
Executed in terra cotta by the Conkling-Armstrong Terra Cotta Company.
Pell & Corbett, Architects.

STATE BOARD OF ARCHITECTURE.

A BILL for an act to provide for the appointment of a State Board of Architecture for the licensing of architects and the regulation of the practice of architecture is being considered by the general assembly of the state of Indiana. Provision is made for a State Board of Architecture to consist of five members. The board shall have full authority in the consideration of applicants for license to practice architecture and shall arrange for at least two examinations each year. Every licensed architect shall possess a seal which will be used on all drawings and specifications. Punishment by fines and imprisonment will be the penalty for any infringement of this law. The bill aims to raise the standard of the practice of architecture to the highest level of



WAITING ROOM, RAILWAY STATION, WATERBURY, CONN.
Showing Guastavino ceiling construction.
McKim, Mead & White, Architects.



DETAIL OF CORNICE.
Work of the American Terra Cotta Company.
Kees & Colburn, Architects.

excellence, bringing credit to the profession as well as infinitely better service to the general public. A similar law exists already in the states of Illinois, New Jersey, California, Colorado and Louisiana.

INTERIOR OF RAILWAY STATION AT WATERBURY.

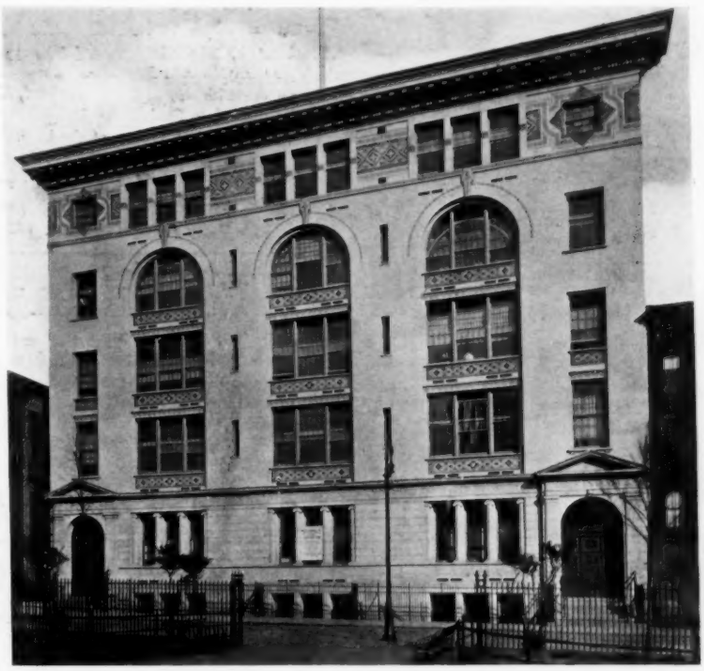
AN interesting example of the increasing interest shown by the railway companies in erecting buildings of architectural beauty as well as of utility and permanence, is the waiting room of the new N. Y., N. H. & H. Ry. at Waterbury, Conn., McKim, Mead & White, architects, illustrated in this issue. The walls are laid in ornamental pressed brick, the mouldings and cornices in terra cotta, and the vaulted ceiling in the Guastavino system, in repressed, buff colored tile, laid herringbone pattern, spanning over the entire room. The arch is an elliptical vault intersected by penetrations giving a groin effect to the vaulting.

THE PRINCIPLES OF ARCHITECTURE.

CONSIDERABLE benefit may be derived, especially by the architectural student and draftsman, from a careful reading of Mr. Mowll's series of short articles on "The Principles of Architecture," the first of which will be found in this issue. In the development of the architect it is at least desirable, if not essential, that some consideration be given the underlying principles of good architecture as deduced from the history of the past as well as a keen appreciation for the best examples of present work. Mr. Mowll's treatise will be found valuable as his ideas are a careful expression of the results obtained from a very thorough study of this subject.

IN GENERAL.

"Building Progress" is the title of a new publication which has just made its appearance. Judging by the character of the contents of the initial number it should prove to be very interesting to those who would keep in touch with modern methods of construction. It is announced as a monthly publication, and the subscription price is $1.00 per year. The work is edited by Sherman Ford and published by the National Fire Proofing Company of Pittsburgh.



ST. GABRIELS SCHOOL, NEW YORK CITY.
Body of the building of "Tapestry" brick. Faience frieze and panels between windows executed in color by The Hartford Faience Company.
John V. Van Pelt, Architect.

In June, 1908, there was applied to a section of the North German Lloyd Piers at Hoboken, N. J., two coats of Cabot's Waterproof Brick Stain and Preservative. Ever since the completion of the piers the walls have been washed down twice a year to remove the salts which disfigured them with the exception of the section treated with the waterproof brick stain in 1908, which has not shown a trace of salts since the preservative was applied. As a result in July, 1910, this material was put on all the walls of the piers, which are illustrated in this issue, and there has been no sign of salts, a conclusive evidence that the bricks are waterproof and permanent.

BUILDINGS OF THE NORTH GERMAN LLOYD STEAMSHIP COMPANY, HOBOKEN, N. J.

The "Tapestry" brick furnished for St. Gabriels School, New York City, illustrated in this issue, was furnished by Fiske & Co., Inc.

Wm. Leslie Welton, architect, has moved to his new offices 1209-11 Empire Building, Birmingham, Ala. Manufacturers' samples and catalogues solicited.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., Dec. 22, 1910.

SEALED PROPOSALS will be received at this office until 3 o'clock P.M. on the 23d day of February, 1911, and then opened, for the construction (including plumbing, gas piping, heating apparatus, electric conduits and wiring) of the U. S. Post Office and Court House at ROSWELL, NEW MEXICO, in accordance with drawings and specifications, copies of which may be had from the Custodian of site at Roswell, New Mexico, or at this office, at the discretion of the Supervising Architect.

JAMES KNOX TAYLOR, *Supervising Architect.*

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., Dec. 23, 1910.

SEALED PROPOSALS will be received at this office until 3 o'clock P.M. on the 3d day of February, 1911, and then opened, for the construction, complete (including plumbing, gas piping, heating apparatus, electric conduits and wiring), of the United States Post Office at HILLSDALE, MICH., in accordance with drawings and specifications, copies of which may be obtained from the Custodian of site at Hillsdale, Mich., or at this office, at the discretion of the Supervising Architect.

JAMES KNOX TAYLOR, *Supervising Architect.*

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., Dec. 28, 1910.

SEALED PROPOSALS will be received at this office until 3 o'clock P.M. on the 7th day of February, 1911, and then opened, for the construction, complete (including plumbing, gas piping, heating apparatus, electric conduits and wiring), of the U. S. Post Office at WATERTOWN, WIS., in accordance with drawings and specifications, copies of which may be obtained from the Custodian of the site at Watertown, Wis., or at this office, at the discretion of the Supervising Architect.

JAMES KNOX TAYLOR, *Supervising Architect.*

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., Jan. 3, 1911.

SEALED PROPOSALS will be received at this office until 3 o'clock P.M. on the 14th day of February, 1911, and then opened, for the construction, complete (including plumbing, gas piping, heating apparatus, electric conduits and wiring), of the U. S. Post Office at BARRE, VT., in accordance with the drawings and specifications, copies of which may be obtained from the Custodian of site at Barre, Vt., or at this office, at the discretion of the Supervising Architect.

JAMES KNOX TAYLOR, *Supervising Architect.*

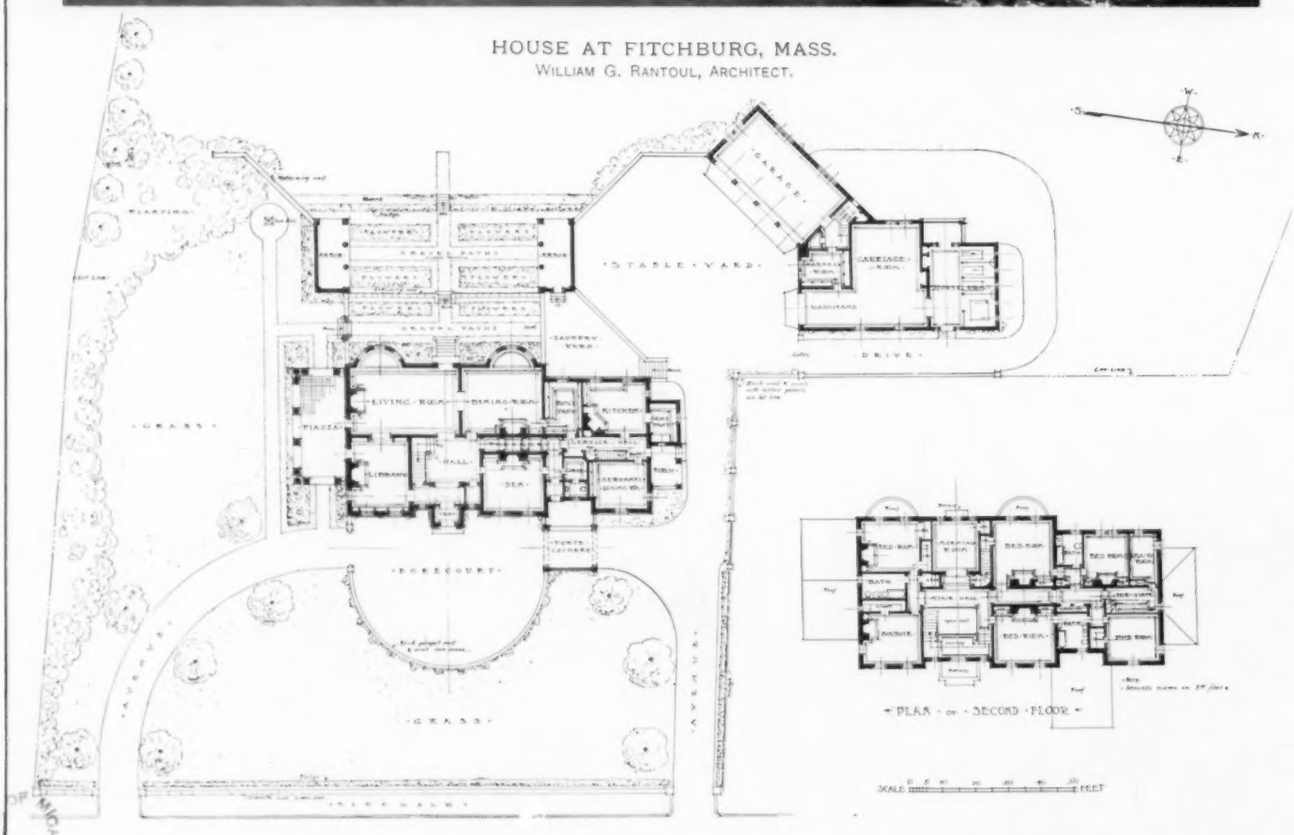
TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., Jan. 7, 1911.

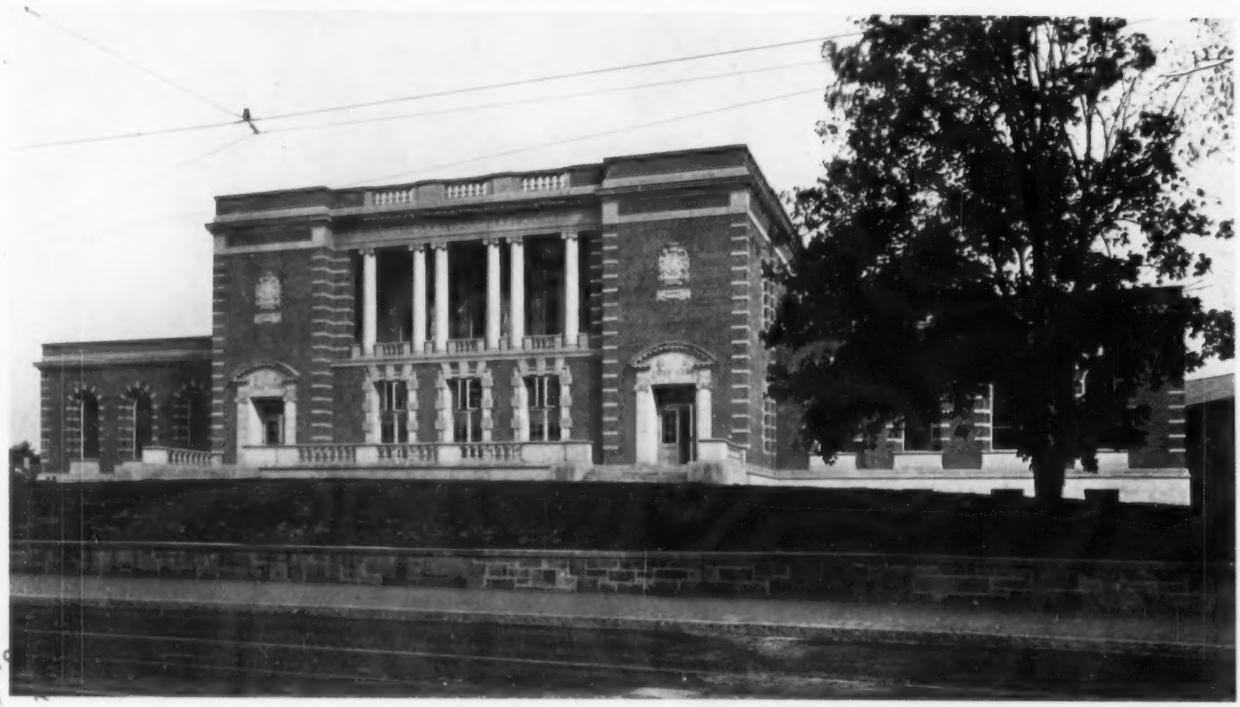
SEALED PROPOSALS will be received at this office until 3 o'clock P.M. on the 18th day of February, 1911, and then opened, for the construction (complete) except elevator, but including plumbing, gas piping, heating apparatus, electric conduits and wiring, of the United States Post Office at NORTH-YAKIMA, WASH., in accordance with drawings and specifications, copies of which may be obtained from the Custodian of site at North-Yakima, Wash., or at this office, at the discretion of the Supervising Architect.

JAMES KNOX TAYLOR, *Supervising Architect.*

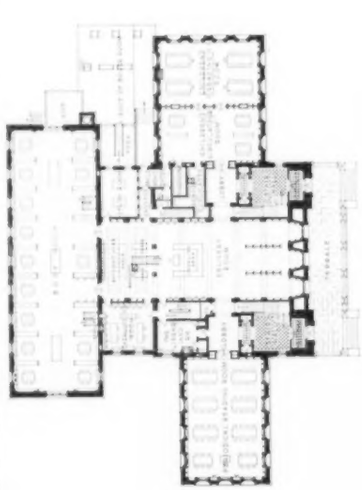
HOUSE AT FITCHBURG, MASS.
WILLIAM G. RANTOUL, ARCHITECT.

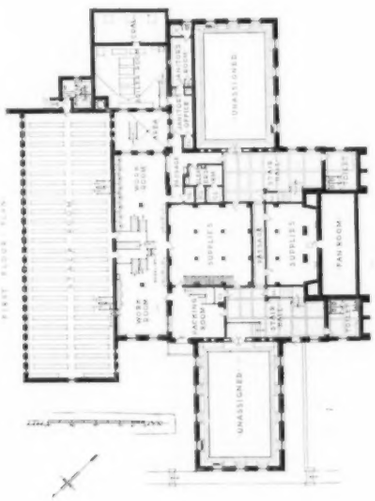
HOUSE AT FITCHBURG, MASS.
WILLIAM G. RANTOUL, ARCHITECT.

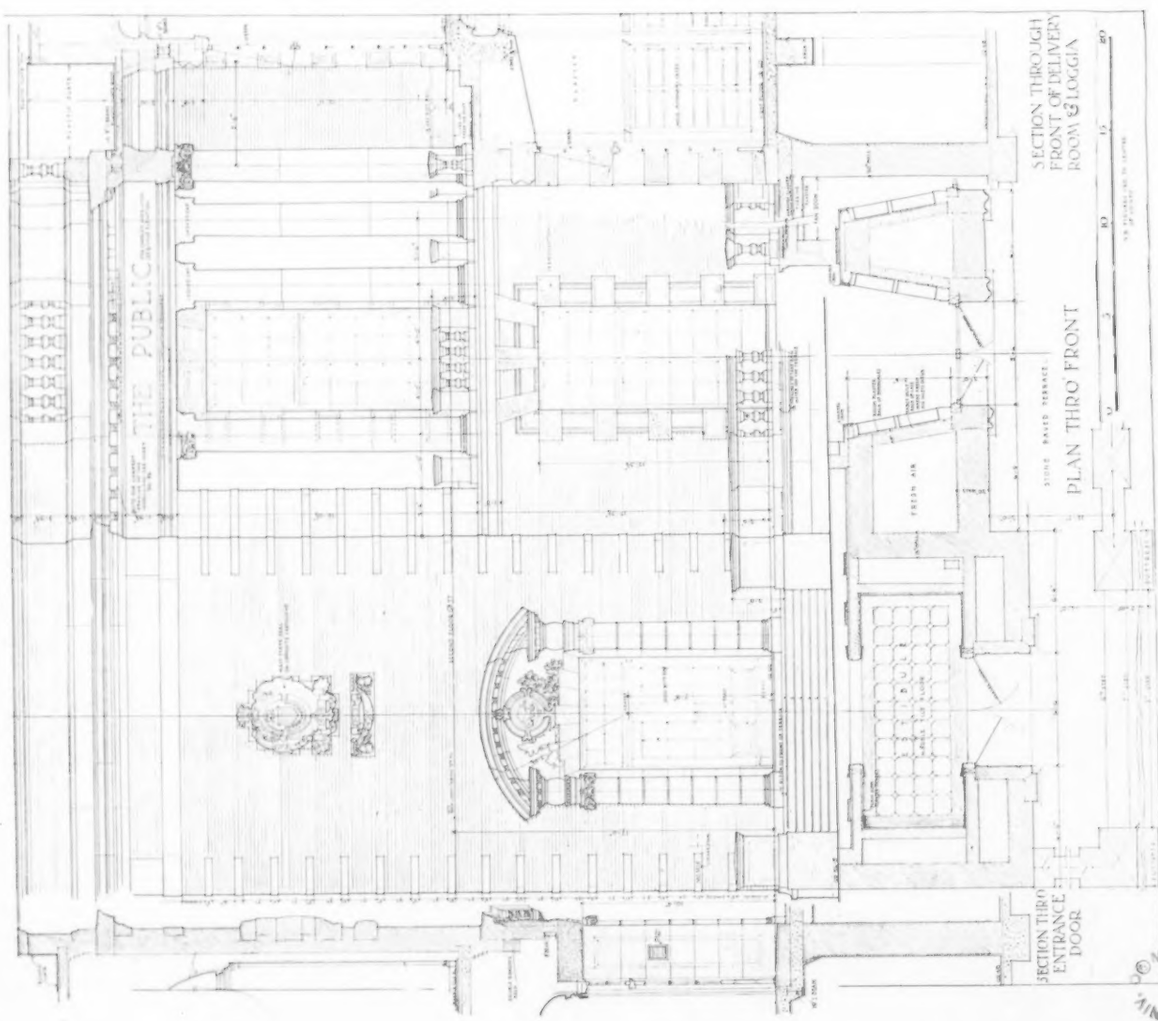




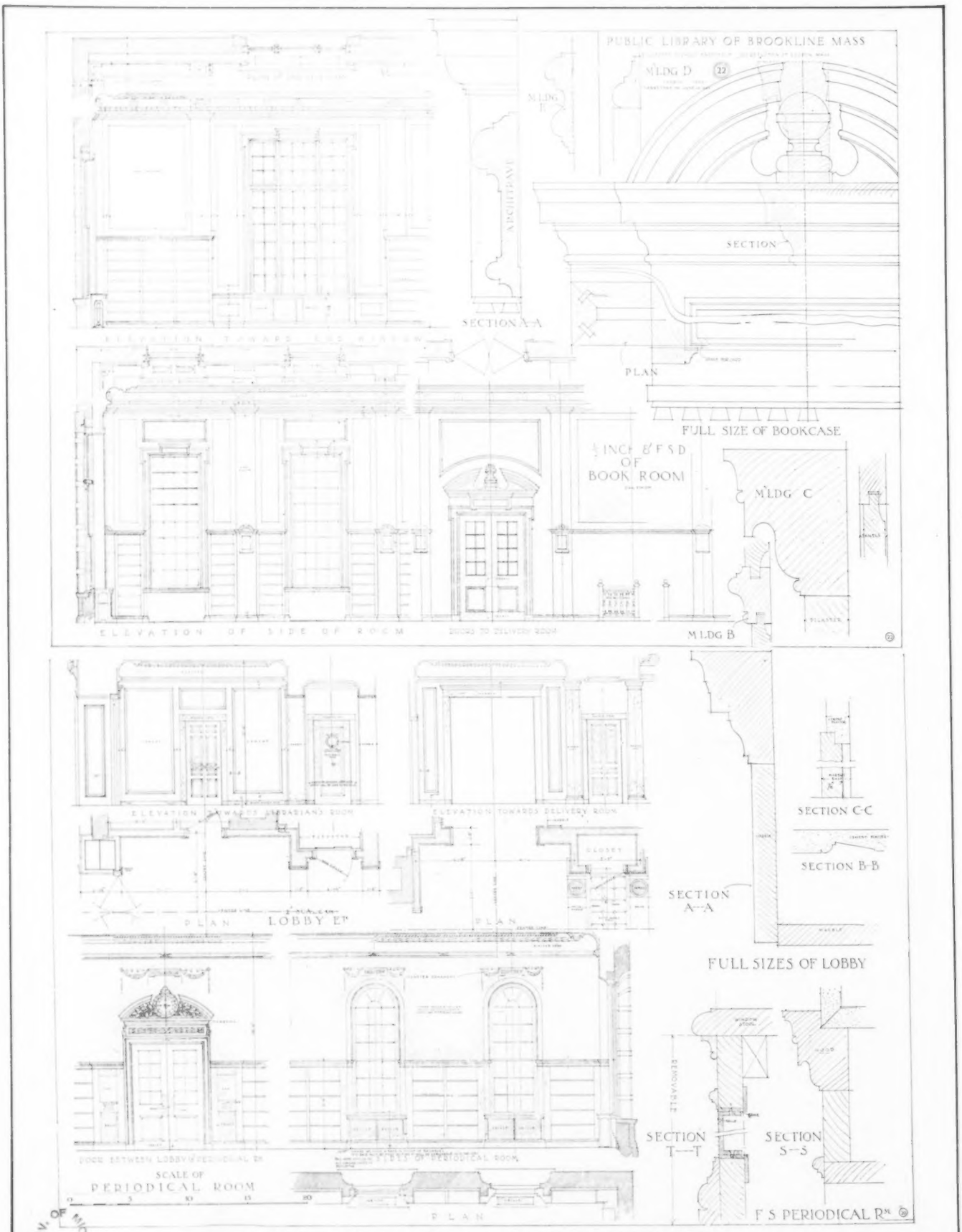
PUBLIC LIBRARY, BROOKLINE, MASS.
R. CLIPSTON STURGIS, ARCHITECT.





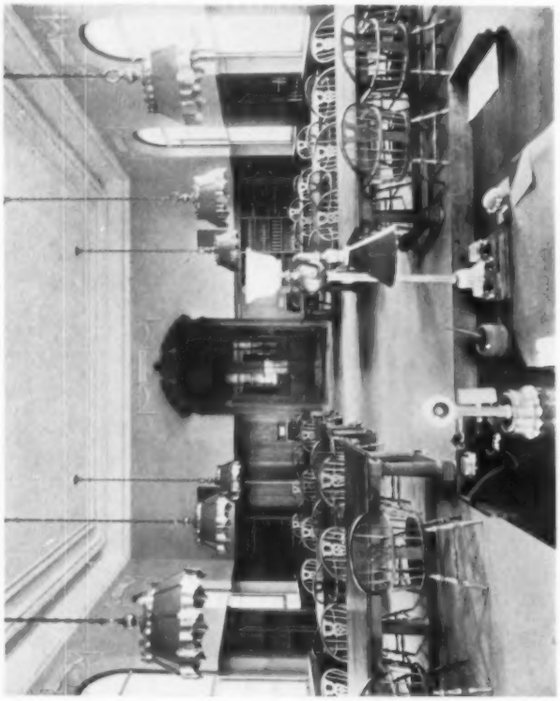


EXTERIOR DETAILS AND PLANS,
PUBLIC LIBRARY, BROOKLINE, MASS.
R. Clipston Sturgis, Architect.



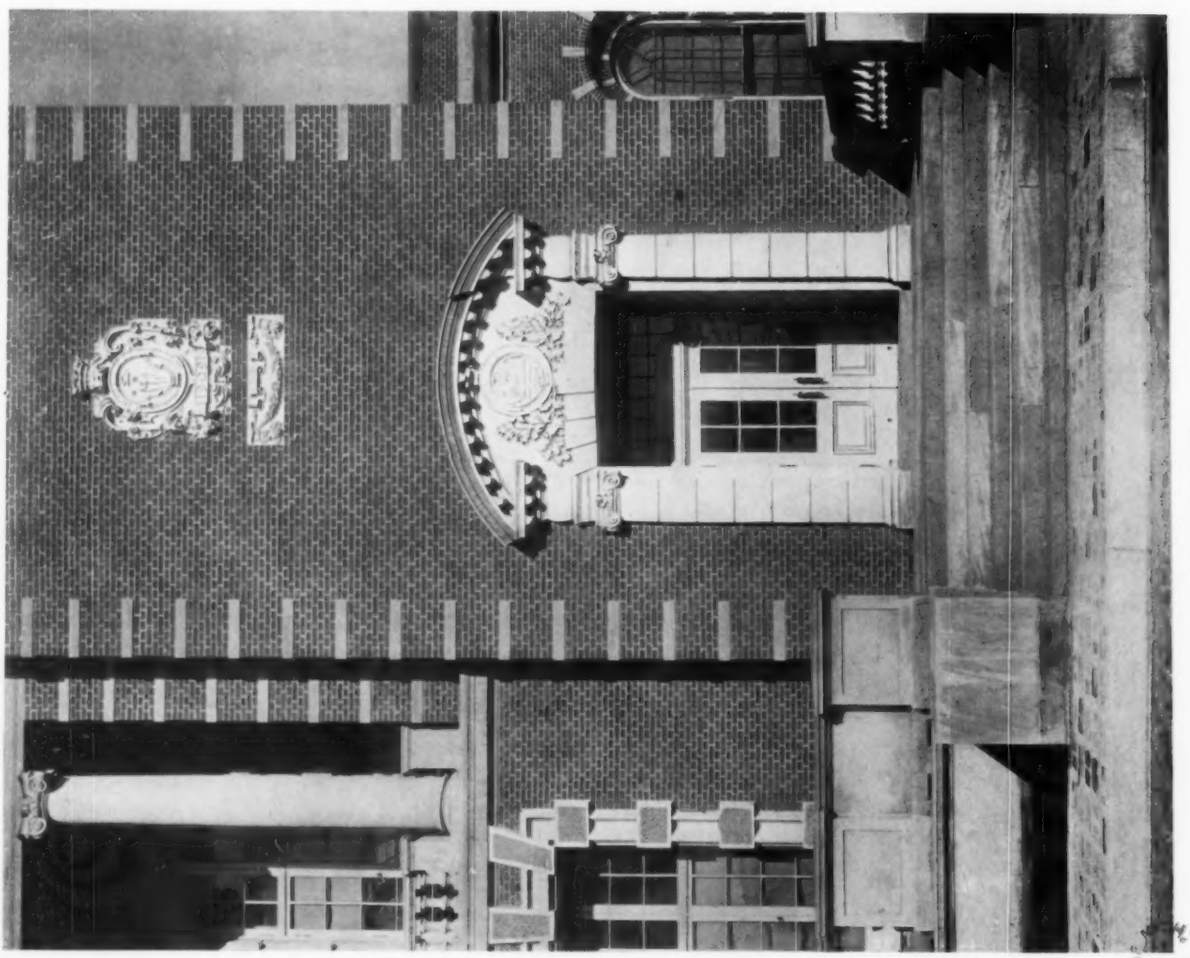
INTERIOR DETAILS, PUBLIC LIBRARY, BROOKLINE, MASS.

R. CLIPSTON STURGIS, ARCHITECT.



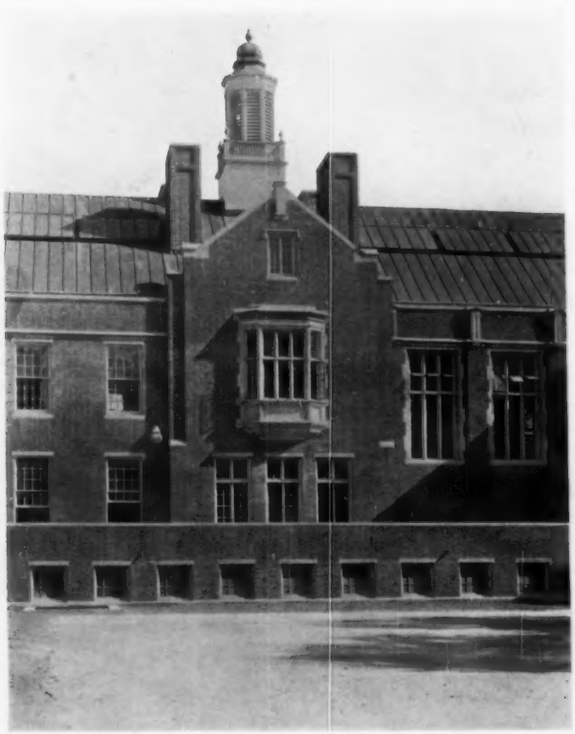
PERIODICAL ROOM.

LOBBY



DETAIL OF ENTRANCE.

PUBLIC LIBRARY, BROOKLINE, MASS.
R. CLIPSTON STURGIS, ARCHITECT.



WINSOR SCHOOL, BROOKLINE, MASS.
R. CLIPSTON STURGIS, ARCHITECT.

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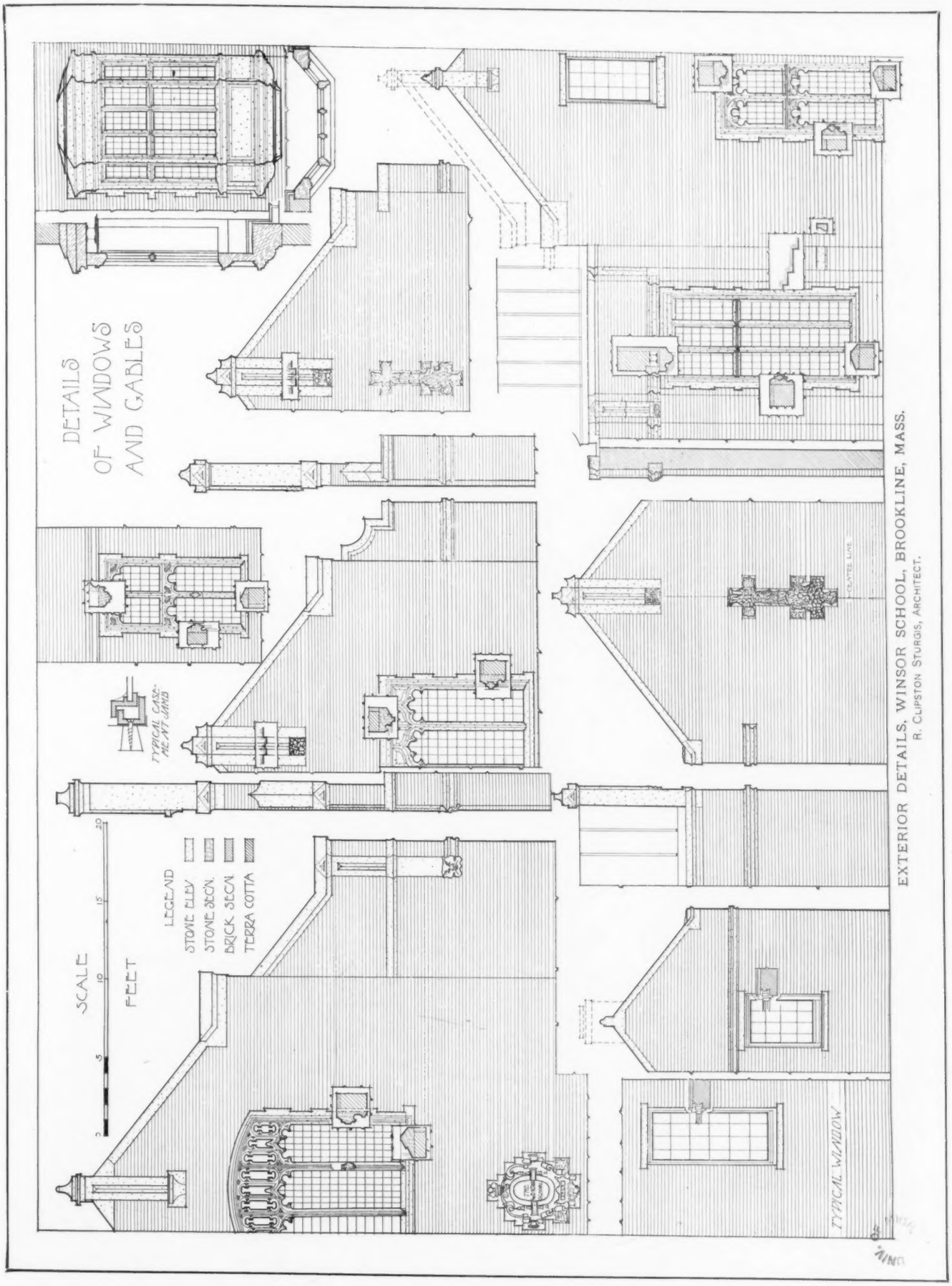

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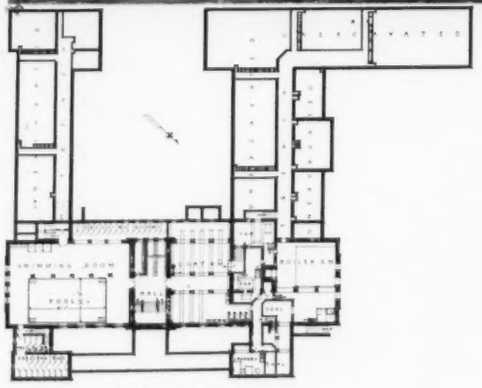
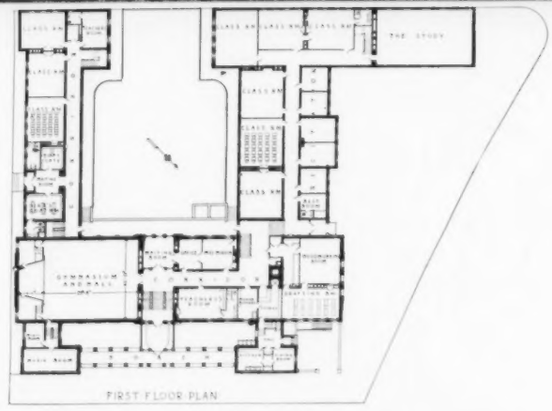
R. CLIPSTON STURGIS, ARCHITECT.



BASEMENT PLAN



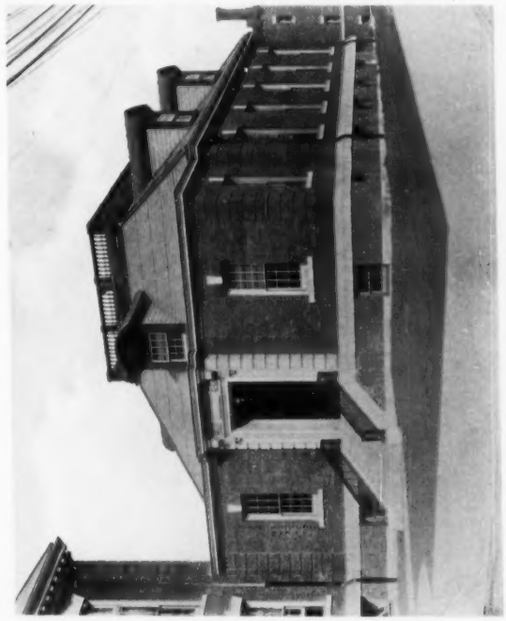
FIRST FLOOR PLAN

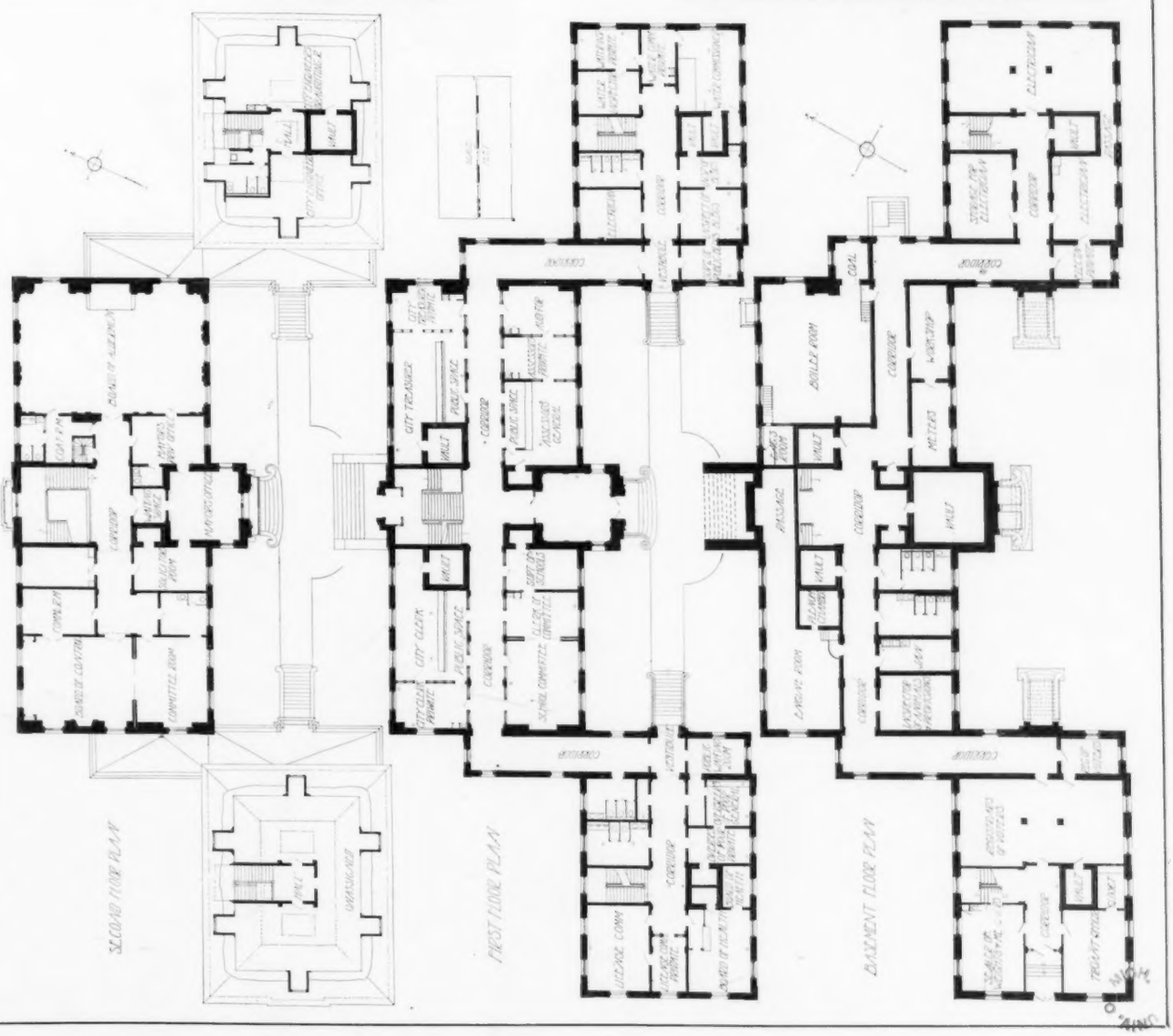
SECOND FLOOR PLAN

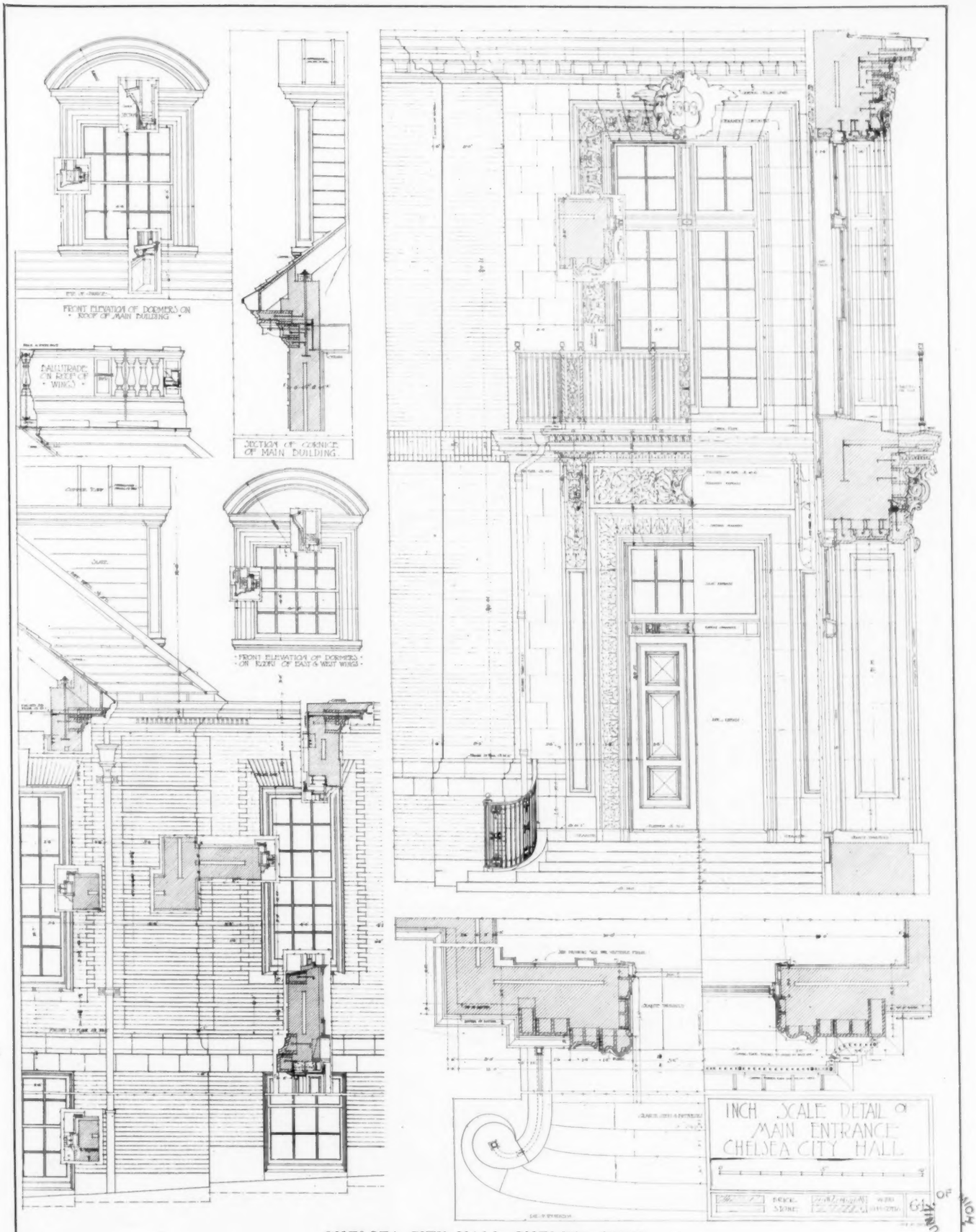
WINSOR SCHOOL, BROOKLINE, MASS.
R. CLIPSTON STURGIS, ARCHITECT.

CHELSEA CITY HALL, CHELSEA, MASS.
PEABODY & STEARNS, ARCHITECTS.

CHELSEA CITY HALL,
CHELSEA, MASS.
PEABODY & STEARNS, ARCHITECTS.

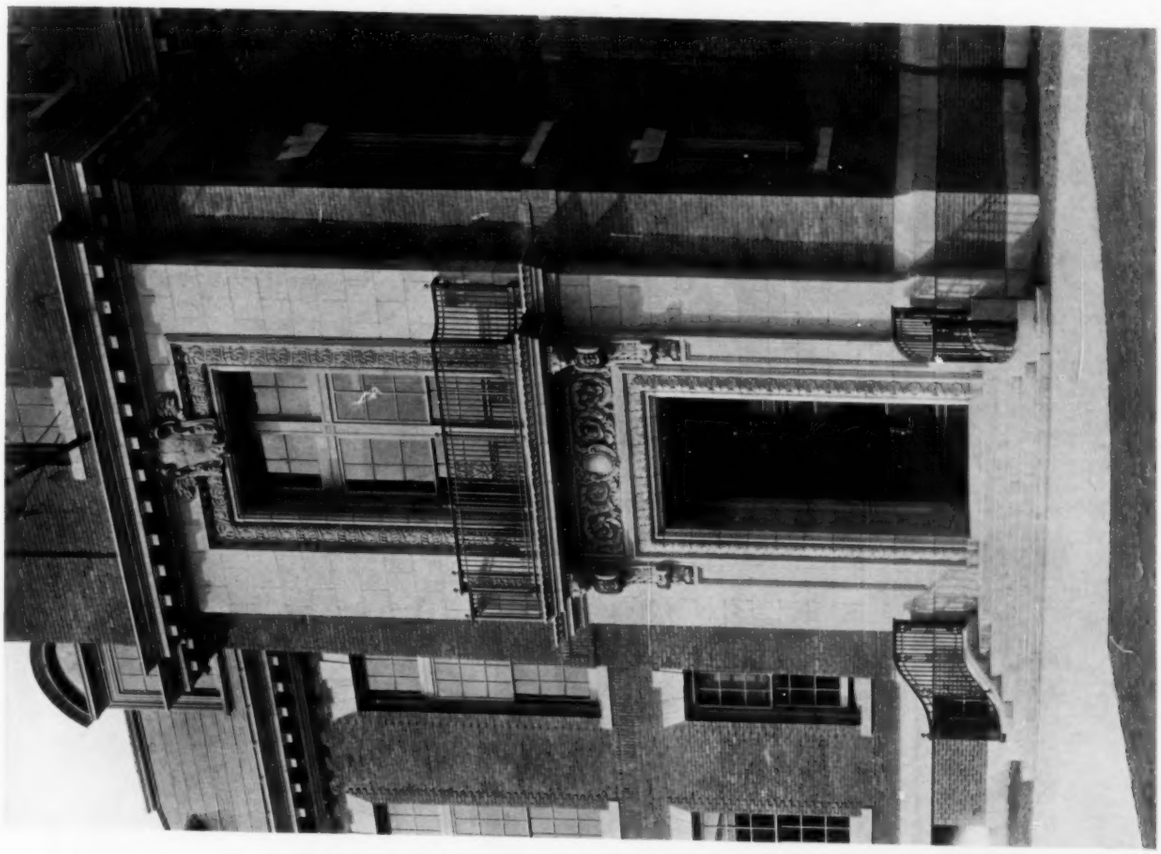






CHELSEA CITY HALL, CHELSEA, MASS.

PEABODY & STEARNS, ARCHITECTS.



CHELSEA CITY HALL, CHELSEA, MASS.
PEABODY & STEARNS, ARCHITECTS.